TARGET PT 2020 in 60 DAYS

CONCEPT | CURRENT AFFAIR | TEST | SNIPPETS

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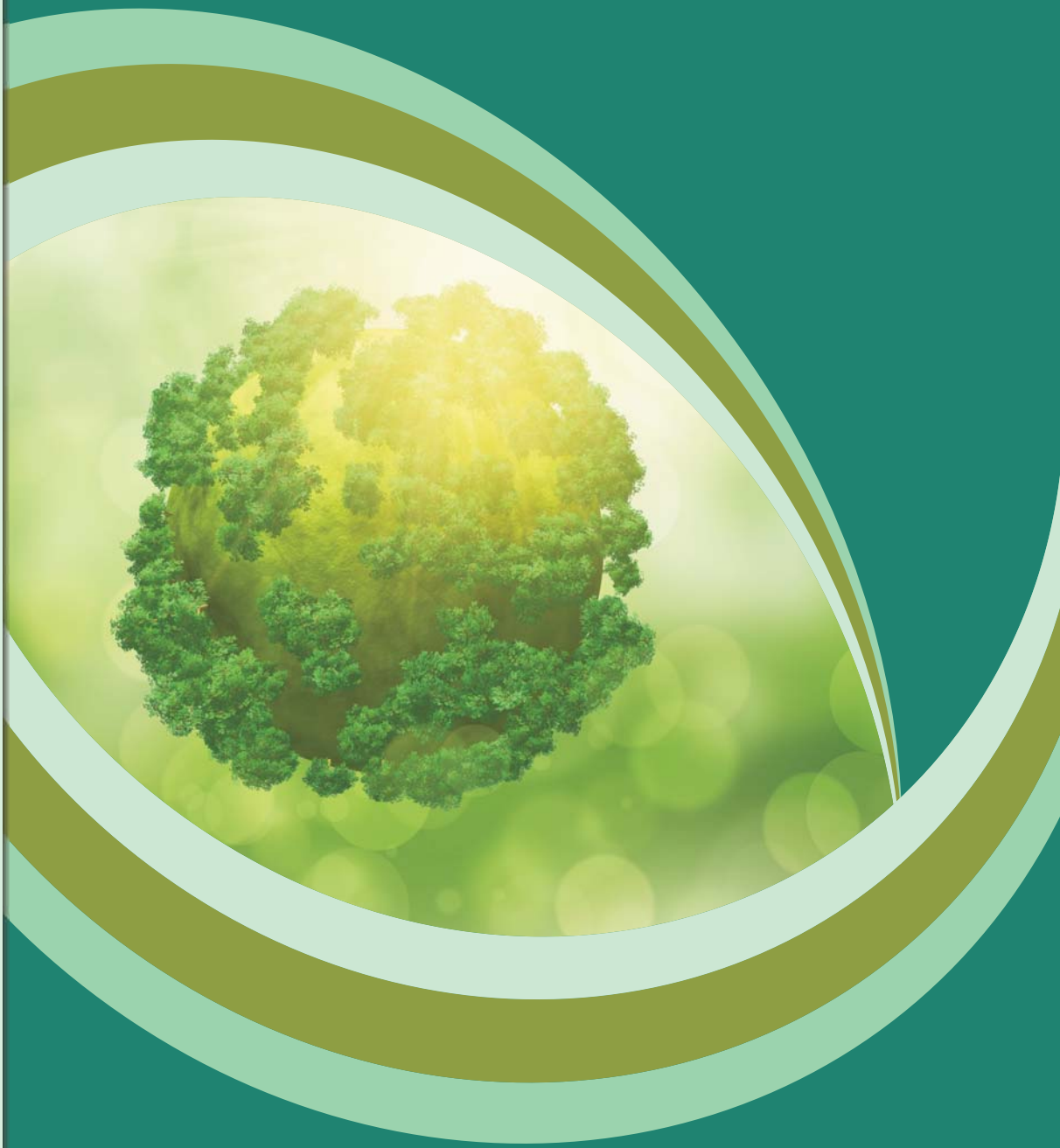

ENVIRONMENT

QUIZ (STATIC & CURRENT)

DAY 31-45

IAS MOCK INTERVIEW

India's Most Experienced Interview Panel is Here!

R.P. Aggarwal
IAS (Retd.)

Amb. Anil Trigunayat
Former Ambassadors & Secretary,
Association of Indian Diplomats (Former Ambassadors)

S.B. Singh
Well known IAS Interview Mentor

G.S. Patnaik
IAS, Former Vice Chairman - DDA,
Former Adviser to Governor of Arunachal Pradesh

R.P. Sinha
IAS, Former Secretary - Govt of India

B.K. Pandey
IES, Former Adviser - NITI Aayog

K.D. Singh
IFoS,
Former Principal Conservator of Forests - Arunachal Pradesh

Dr. N.K. Sahu
IES, Former Joint Secretary - HRD Ministry

Devi Prasad
IES, Celebrated Budget and Economic Survey Expert

S.B.S Tyagi
IPS (Retd.)

H. Bhusan
Serving Bureaucrat, Government of India

- and many other Senior Civil Servants and Academicians who will part of the board...

HIGHLIGHTS

- Question on Debatable Topic for Self-paced Preparation
- Analysis of Controversial Topics & Tips to handle
- DAF Analysis
- 1 Mock Interview
- Mock Feedback
- Video Recording

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TEST

DAY - 31

Time Allowed: 30 mins **Maximum Marks: 50**

1. With reference to the ecological pyramids, consider the following statements:

1. Unlike in the grazing food chain, the pyramid of biomass in the aquatic food chain is inverted.
2. In the forest ecosystem, the pyramid of numbers is always upright.
3. Since the sun is not a primary source of energy in a detritus food chain, therefore the pyramid of energy is inverted here.

Which of the above statement is/are ***incorrect***?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

2. Which of the following is the author of "Small Is Beautiful"?

(a) Rachel Carson

(b) E. F. Schumacher

(c) Leopold Kohr

(d) Alan Weisman

3. Consider the following statements regarding Tundra ecosystems:

1. Tundra ecosystems are exclusively found in the Arctic region.
2. Mammals of the tundra region have a large body size, small tail, and small ear.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

4. Consider the following statements regarding biosphere on the Earth.

1. It is exclusively present on the Earth.
2. It includes the lithosphere and hydrosphere only.
3. It includes only living organisms on the earth.

Which of the above statements is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1, 2, and 3

(d) 1 only

5. Which of the following statements is/are *incorrect*?

1. Standing crop is the number of total living organisms present in an ecosystem.
2. Standing state is the amount of biomass present in the ecosystem.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

6. Which of the following statements is/are correct?

1. A food chain is a subset of the food web.
2. The presence of complex food webs leads to instability in the ecosystem.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

7. Consider the following pairs of the aquatic organisms and their features:

1. Periphyton: Attached to roots
2. Plankton: Limited locomotory powers
3. Benthos: Lives in the bottom of the water mass

Which of the above pairs is/are correctly matched?

(a) 3 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1 and 2 only

8. Which of the following statements is/ are correct?

1. Unlike in the photic zone where both photosynthesis and respiration occur, only respiration takes place in the aphotic zone.
2. The profundal zone lies between photic and the aphotic zones.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

9. Consider the following statements regarding oxygen in the aquatic system:

1. The concentration of oxygen in the aquatic system is higher than that on the terrestrial ecosystems
2. The amount of dissolved oxygen present in water is influenced by temperature.

Which of the above statements is/are ***incorrect?***

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

10. If an elephant walks on the grass, many insects along with grasses are killed. Which type of biotic interaction is this?

(a) Commensalism

(b) Amensalism

(c) Predation

(d) Neutralism

11. Consider the following statements:

1. In bioaccumulation, there is an increase in the concentration of a pollutant from one link in a food chain to another.
2. Biomagnification occurs if the pollutant is fat-insoluble.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

12. Consider the following statements regarding Nutrient Cycle:

1. Unlike energy, the nutrient of an ecosystem flow in a circular manner.
2. Most gaseous cycles are generally considered as imperfect cycles.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

13. Which of the following is correct regarding the term species?

(a) It includes various genera that share a few similarities.

(b) It is a group of similar populations of organisms whose members are capable of interbreeding, and to produce fertile offspring.

(c) A group of similar genus forms a species.

(d) All of the above

14. Which of the following statements is/ are correct?

1. The term "Ecosystem" was coined by Arthur Tansley.
2. Ernst Haeckel was the first to coin the term "Ecology".
3. Charles Sutherland Elton coined the term "Ecological niche".

Select the correct answer using the code given below:

(a) 2 only

(b) 3 only

(c) 1 and 2 only

(d) 1, 2, and 3

15. Which of the following can be factor(s) of the environment?

1. Edaphic factors
2. Animals
3. Temperature

Select the correct answer using the code given below:

(a) 2 only

(b) 3 only

(c) 1 and 2 only

(d) 1, 2, and 3

16. Consider the following statements regarding the ecosystem:

1. Vertical distribution of different species occupying different levels is called stratification.
2. In a pond ecosystem, the producers are represented by phytoplankton whereas the consumers are represented by the zooplankton.

Which of the following statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

17. Regarding the process of Decomposition, consider the following:

1. During the process of decomposition decomposers break down complex inorganic substances into organic matter.
2. Catabolism is a process where bacterial and fungal enzymes degrade detritus into simpler inorganic substances.
3. The rate of decomposition is controlled by biological composition of detritus and climatic factors.

Which of the following statements is/are ***incorrect***?

(a) 1 and 3 only

(b) 1 only

(c) 2 and 3 only

(d) 1 and 2 only

18. Which of the following statements is *incorrect* regarding the Energy Flow in an ecosystem?

(a) All animals depend on plants (directly or indirectly) for their food needs.

(b) Sun is the only source of energy for all ecosystems on Earth.

(c) The detritus food chain (DFC) begins with dead organic matter.

(d) In an aquatic ecosystem, grazing food chain (GFC) is the major conduit for energy flow.

19. Consider the following statements regarding the Ecological Pyramids:

1. The pyramid of biomass in sea is generally inverted.
2. The amount of energy available by the time the top of the pyramid is reached is not enough to sustain many individuals.
3. The base of each pyramid represents the producers or the first trophic level while the apex represents tertiary or top level consumer.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

20. Consider the following statements:

1. The community that is in near equilibrium with the environment and that is called a climax community.
2. Hydrarch succession takes place in wetter areas while the xerarch succession takes place in dry areas.

Which of the following statements is/are correct regarding Ecological Succession?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

21. Consider the following statements about Indian national Congress:

1. The theme of 107th Indian Science Congress is "Science and Technology: Rural Development".
2. The Indian Science Congress Association (ISCA) owes its origin to the foresight and initiative of Professor J. L. Simonsen and scientist Homi J. Bhaba.
3. The 107th Indian Science Congress was inaugurated by PM Narendra Modi at New Delhi.

Which of the above statement(s) is/are **incorrect**?

(a) 1 only

(b) 1 and 2 only

(c) 1, 2 and 3

(d) 2 and 3 only

22. Consider the following statements about The India State of Forest Report 2019-

1. Total tree and forest cover in the country has decreased in the last two years.
2. There is an increase in the carbon stock of the country

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

23. "Hera mission" which was currently in news is been launched by which organization?

(a) ESA

(b) NASA

(c) ISRO

(d) Canadian Space Agency

24. With reference to Data Protection Bill 2019, consider the following statements

1. Bill governs the processing of personal data by Government only.
2. A data fiduciary is an entity or individual who decides the means and purpose of processing personal data.

Which of the following statement is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

25. Consider the following statements regarding National Clean Air Programme

1. The government is targeting to achieve 20 per cent to 30 per cent reduction in Particulate Matter PM10 and PM2.5 concentrations by 2024.
2. Base year would be 2011-12
3. An all India standard plan has been prepared and approved for ground implementation.

Which of the following statement is/are correct?

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

ANSWER HINTS

DAY - 31

1. Correct Option: (c)

Explanation:

Ecological pyramids

- In the grazing food chain (many plants-many herbivores-fewer carnivores) the pyramid of biomass is upright (decreasing at each trophic level)
- **In the aquatic food chain of Phytoplankton (low biomass)-zooplankton(more biomass)-predator(more biomass), the pyramid of biomass is inverted.**
- **Generally, the pyramid of number is upright in the forest ecosystem but, there are exceptions. For instance, in a food chain starting from one tree(one Tree-many herbivores-few carnivores), the pyramid is neither upright nor inverted.**
- **Pyramid of energy** in any food chain of any ecosystem is **always upright.**

2. Correct Option: (b)

Explanation:

Small Is Beautiful

- It is a collection of essays by German-born British statistician and economist **E. F. Schumacher**.
- Rachel Carson wrote the Silent Spring.

3. Correct Option: (b)

Explanation:

Tundra

- **Tundra ecosystems are treeless regions found in the Arctic and on the tops of mountains,** where the climate is cold and windy, and rainfall is scant. Tundra lands are covered with snow for much of the year, but summer brings bursts of wildflowers.
- Tundra means a "barren land" since they are found where environmental conditions are very severe.
- There are two types of tundra viz. arctic and alpine.

Arctic Tundra

- Arctic tundra extends as a continuous belt below the polar ice cap and above the tree line in the northern hemisphere. It occupies the northern fringe of Canada, Alaska, European Russia, Siberia and island group of Arctic Ocean. On the south pole, tundra is very small since most of it is covered by the ocean.
- Flora and fauna: Typical vegetation of arctic tundra is cotton grass, sedges, dwarf heath, willows, birches, and lichens. Animals of tundra are reindeer, musk ox, arctic hare, caribous, lemmings, and squirrel.
- Most of them have a long life e.g. arctic willow has a life span of 150 to 300 years. They are protected from chillness by the presence of thick cuticle and epidermal hair.

Alpine Tundra

- Alpine tundra occurs at high mountains above the with respect to Arctic mountains are found at all latitudes, therefore, alpine tundra shows day and night temperature variations.
- **Mammals of the tundra region have a large body size, small tail and small ear to avoid the loss of heat from the surface. The body is covered with fur for insulation. Insects have short life cycles that are completed during a favorable period of the year.**

4. Correct Option: (d)

Explanation:

Biosphere

- The biosphere is the layer of the planet Earth **only where life exists.**

- **It is the intersection of lithosphere, hydrosphere, and atmosphere.**
- **The biosphere includes all living organisms on earth, together with the dead organic matter produced by them.**

5. Correct Option: (b)

Explanation:

Standing state and Standing crop

- Each trophic level has a certain mass of living material at a particular time called the standing crop. The standing crop is measured as the **mass of living organisms (biomass) or the number in a unit area**. There is no circulation of the standing crops.
- **Standing state is the amount of inorganic nutrients found in an ecosystem**. It represents part of non-living matter. It circulates between living and non-living components of the ecosystem. It is being regularly depleted and replenished by the 1 living matters.

6. Correct Option: (a)

Explanation

Food Chain and web

- A food chain is a linear sequence of organisms through which nutrients and energy pass as one organism eats another.
- Organisms in the ecosystem are related to each other through feeding mechanisms or trophic levels, i.e. one organism becomes food for the other.
- A food chain starts with producers and ends with top carnivores. In this, each organism occupies a different trophic level.

Food Web

- **A food chain represents only one part of the food or energy flow through an ecosystem and implies a simple, isolated relationship, which seldom occurs in the ecosystems.**
- "A food web illustrates, all possible transfers of energy and nutrients among the organisms in an ecosystem, whereas a food chain traces only one pathway of the food".
- If any of the intermediate food chains are removed, the succeeding links of the chain will be affected largely.
- The food web provides more than one alternative for food to most of the organisms in an ecosystem and therefore increases their chance of survival.
- For example, grasses may serve food for rabbits or grasshoppers or goats or cows. Similarly, a herbivore may be a food source for many carnivorous species.
- **The presence of complex food webs increases the stability of the ecosystem.**
- More complex food webs improve the adaptability and competitiveness of the organisms. Also, food availability and preferences of food of the organisms may shift seasonally. E.g. we eat watermelon in summer and peaches in the winter.
- Thus, there are interconnected networks of feeding relationships that take the form of food webs.

7. Correct Option: (b)

Explanation:

Aquatic Organisms

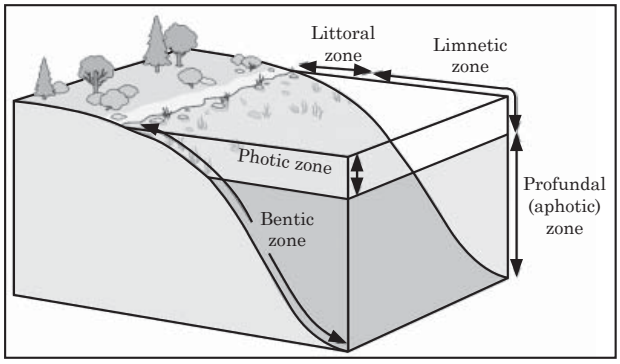
- **Periphyton:** These are organisms that remain **attached to stems and leaves** of rooted plants or substances emerging above the bottom mud such as sessile algae and their associated group of animals.
- **Plankton**: This group includes both microscopic plants like algae (phytoplankton) and animals like crustaceans and protozoans (zooplankton) found in all aquatic ecosystems, except certain swift-moving waters. The **locomotory power of the planktons is limited** so that their distribution is controlled, largely, by currents in the aquatic ecosystems.
- **Benthos**: The benthic organisms are those found living at the **bottom of the water mass**. Practically every aquatic ecosystem contains well-developed benthos.

8. Correct Option: (a)

Explanation:

Photic zone

- It is the upper layer of the aquatic ecosystems, up to which light penetrates and within which photosynthetic activity is confined.
- The depth of this zone depends on the transparency of water.
- **Both photosynthesis and respiration activity takes place.**



- The photic (or "euphotic") zone is the lighted and usually well-mixed portion that extends from the lake surface down to where the light level is 1% of that at the surface.

Aphotic zone

- The lower layers of the aquatic ecosystems, where light penetration and plant growth are restricted forms the aphotic zone.
- **Only respiration activity takes place.**
- The aphotic zone is positioned below the littoral and photic zones to the bottom of the lake where light levels are too low for photosynthesis. Respiration occurs at all depths so the aphotic zone is a region of oxygen consumption.
- **This deep, unlit region is also known as the profundal zone.**

9. Correct Option: (a)

Explanation:

Dissolved Oxygen in Aquatic Ecosystems

- In aquatic ecosystems, oxygen is dissolved in water, where its concentration varies constantly depending on factors that influence the input and output of oxygen in the water.
- **In freshwater, the average concentration of dissolved oxygen is 0.0010 percent (also expressed as 10 parts per million or 10 ppm) by weight, which is 150 times lower than the concentration of oxygen in an equivalent volume of air. Thus, the concentration of oxygen is less in the aquatic ecosystems than that in the terrestrial ecosystems.**
- Oxygen enters the aquatic ecosystem through the air-water interface and by the photosynthetic activities of aquatic plants.
- Therefore, the quantity of dissolved oxygen present in an ecosystem depends on the rate at which the aforesaid two processes occur.
- Dissolved oxygen escapes the water body through the air-water interface and through respiration of organisms (fish, decomposers, zooplanktons, etc).
- **The amount of dissolved oxygen retained in water is also influenced by temperature.** Oxygen is less soluble in warm water. Warm water also enhances decomposer activity. Therefore, increasing the temperature of a water body increases the rate at which oxygen is depleted from water.
- When the dissolved oxygen level falls below 3-5 ppm, many aquatic organisms are likely to die.

10. Correct Option: (b)

Explanation:

Types of biotic interaction

- Mutualism: When both species benefit. Example- In Lichens, Algae provides food by photosynthesis and Fungi provides shelter, thus both get benefits.
- Commensalism: When one species benefits, the other is unaffected. Example- cow dung provides food and shelter to dung beetles. The beetles have no effect on the cows.
- **Amensalism: One species is harmed, the other is unaffected. Example-as in the above question.**
- Predation and parasitism: one species benefits, the other is harmed. Example- Predator kills and eats prey; Virus(Parasite) causes harm to the host
- Competition: both species are harmed by the interaction. Example-Two species live in the same niche are in competition.
- Neutralism: There is no net benefit or harm to either species. Example- Two same species inhabiting the same space(large) and using the same resources(large).

11. Correct Option: (d)

Explanation:

Pollutants in the trophic level

- **Bioaccumulation**: In bioaccumulation, there is an increase in the concentration of a pollutant from the environment to the first organism in a food chain. Thus, It refers to how pollutants enter a food chain.
- **Biomagnification**: in this, there is an **increase in the concentration** of a pollutant from one trophic level to another.

- **Condition for bioaccumulation** - High level of pollutants in the environment.
- **Condition for biomagnification- Pollutants must be fat-soluble, long-lived, biologically active, etc.**

12. Correct Option: (d)

Explanation:

Nutrient Cycling

- **The nutrient cycle is a concept that describes how nutrients move from the physical environment to the living organisms, and subsequently recycled back to the physical environment.** This movement of nutrients from the environment into plants and animals and again back to the environment is essential for life and it is the vital function of the ecology of any region.
- Based on the replacement period a nutrient cycle is referred to as a Perfect or Imperfect cycle.
- A perfect nutrient cycle is one in which nutrients are replaced as fast as they are utilized. **Most gaseous cycles are generally considered as perfect cycles.**
- In contrast, sedimentary cycles are considered relatively imperfect, as some nutrients are lost from the cycle and get locked into sediments and so become unavailable for immediate cycling.

13. Correct Option: (b)

Explanation:

Species

- A species is defined as; "**a group of similar populations of organisms whose members are capable of interbreeding, and to produce fertile offspring (children)".** A tiger, a lion, a lotus, etc., are some examples of different species.
- Speciation is the process by which new species are formed and evolution is the mechanism by which speciation is brought about.

14. Correct Option: (c)

Explanation:

Founders of the ecological studies

- Ecology was first coined and defined in 1869 by Ernst Haeckel as the 'study of the interaction of organisms with their environment.
- An ecosystem is a community of organisms, their environment, and their interactions as a system. **It was first coined by Arthur Tansley.**
- **Ecological niche was coined by the naturalist Roswell Hill Johnson. but Joseph Grinnell was probably the first to use it in a research program in 1917. It was further described by Charles Sutherland Elton.**

15. Correct Option: (d)

Explanation:

Environmental factors

- Environment is the natural component in which biotic (living) and abiotic (non-living) factors interact among themselves and with each other. In a biological sense, the environment constitutes the physical (nutrients, water, air) and biological factors (biomolecules, organisms) along with their chemical interactions (chemical cycles – carbon cycle, nitrogen cycle etc.) that affect an organism or a group of organisms.
- All these environmental factors can be broadly classified into the following divisions:
  - Climatic or Aerial factors: they include light, **temperature**, Water, Rainfall, Humidity, Atmospheric gases (wind), etc.
  - Topographic or Physiographic factors: Altitude, slopes, etc.
  - **Edaphic** factors: Soil
  - Biotic factors: Plants, **animals**, microbes, etc.
  - Limiting Factors: time, nutrients, etc.

16. Correct Option: (c)

Explanation:

Ecosystem

- Interaction of biotic and abiotic components results in a physical structure that is characteristic for each type of ecosystem.
- Identification and enumeration of plant and animal species of an ecosystem gives its species composition.
- **Vertical distribution of different species occupying different levels is called stratification**. For example, trees occupy top vertical strata or layer of a forest, shrubs the second and herbs and grasses occupy the bottom layers.
- A pond is a shallow water body in which all the four basic components of an ecosystem

(Productivity; Decomposition; Energy flow; and Nutrient cycling) are well exhibited.

- The abiotic component is the water with all the dissolved inorganic and organic substances and the rich soil deposit at the bottom of the pond.
- The solar input, the cycle of temperature, day-length and other climatic conditions regulate the rate of function of the entire pond.
- **The autotrophic components include the phytoplankton**, some algae and the floating, submerged and marginal plants found at the edges.
- **The consumers are represented by the zooplankton**, the free swimming and bottom dwelling forms.
- The decomposers are the fungi, bacteria and flagellates especially abundant in the bottom of the pond.
- This system performs all the functions of any ecosystem and of the biosphere as a whole, i.e., conversion of inorganic into organic material with the help of the radiant energy of the sun by the autotrophs; consumption of the autotrophs by heterotrophs; decomposition and mineralisation of the dead matter to release them back for reuse by the autotrophs, these event are repeated over and over again.
- There is unidirectional movement of energy towards the higher trophic levels and its dissipation and loss as heat to the environment.

17. Correct Option: (a)

Explanation:

Decomposition

- Decomposers break down complex **organic matter into inorganic substances** like carbon dioxide, water and nutrients and the process is called decomposition.
- Dead plant remains such as leaves, bark, flowers and dead remains of animals, including fecal matter, constitute detritus, which is the raw material for decomposition.
- The important steps in the process of decomposition are fragmentation, leaching, catabolism, humification and mineralisation. Detritivores (e.g., earthworm) break down detritus into smaller particles. This process is called fragmentation.
- By the process of leaching, watersoluble inorganic nutrients go down into the soil horizon and get precipitated as unavailable salts.
- **Bacterial and fungal enzymes degrade detritus into simpler inorganic substances. This process is called as catabolism**. It is important to note that all the above steps in decomposition operate simultaneously on the detritus.
- Humification and mineralisation occur during decomposition in the soil. Humification leads to accumulation of a dark coloured amorphous substance called humus that is highly resistant to microbial action and undergoes decomposition at an extremely slow rate.
- Being colloidal in nature it serves as a reservoir of nutrients. The humus is further degraded by some microbes and release of inorganic nutrients occur by the process known as mineralisation.
- Decomposition is largely an oxygen-requiring process. **The rate of decomposition is controlled by chemical composition of detritus and climatic factors.**
- In a particular climatic condition, decomposition rate is slower if detritus is rich in lignin and chitin, and quicker, if detritus is rich in nitrogen and water-soluble substances like sugars.
- Temperature and soil moisture are the most important climatic factors that regulate decomposition through their effects on the activities of soil microbes.
- Warm and moist environment favour decomposition whereas low temperature and anaerobiosis inhibit decomposition resulting in build up of organic materials.

18. Correct Option: (a)

Explanation:

Energy Flow

- **All animals depend on plants (directly or indirectly) for their food needs**. They are hence called consumers and also heterotrophs. If they feed on the producers, the plants, they are called primary consumers, and if the animals eat other animals which in turn eat the plants (or their produce) they are called secondary consumers. Likewise, you could have tertiary consumers too. Obviously the primary consumers will be herbivores. Some common herbivores are insects, birds and mammals in terrestrial ecosystem and molluscs in aquatic ecosystem.
- **Except for the deep sea hydro-thermal ecosystem, sun is the only source of**

energy for all ecosystems on Earth. Of the incident solar radiation less than 50 per cent of it is photosynthetically active radiation (PAR). We know that plants and photosynthetic and chemosynthetic bacteria (autotrophs), fix suns' radiant energy to make food from simple inorganic materials. Plants capture only 2-10 per cent of the PAR and this small amount of energy sustains the entire living world.

- **The detritus food chain (DFC) begins with dead organic matter**. It is made up of decomposers which are heterotrophic organisms, mainly fungi and bacteria. They meet their energy and nutrient requirements by degrading dead organic matter or detritus. These are also known as saprotrophs (sapro: to decompose).
- **In an aquatic ecosystem, GFC is the major conduit for energy flow**. As against this, in a terrestrial ecosystem, a much larger fraction of energy flows through the detritus food chain than through the GFC. Detritus food chain may be connected with the grazing food chain at some levels: some of the organisms of DFC are prey to the GFC animals, and in a natural ecosystem, some animals like cockroaches, crows, etc., are omnivores. These natural interconnection of food chains make it a food web.

19. Correct Option: (d)

Explanation:

Ecological Pyramids

- The **pyramid of biomass in sea is generally inverted** because the biomass of fishes far exceeds that of phytoplankton.
- The **base of a pyramid is broad and it narrows down at the apex**. One gets a similar shape, whether you express the food or energy relationship between organisms at different trophic level. Thus, relationship is expressed in terms of number, biomass or energy. The base of each pyramid represents the producers or the first trophic level while the apex represents tertiary or top level consumer. The three ecological pyramids that are usually studied are (a) pyramid of number; (b) pyramid of biomass and (c) pyramid of energy.
- **Pyramid of energy is always upright, can never be inverted**, because when energy flows from a particular trophic level to the next trophic level, some energy is always lost as heat at each step. Each bar in the energy pyramid indicates the amount of energy present at each trophic level in a given time or annually per unit area.
- Since only 10% of the energy is transferred from one trophic level to the next, **fewer and fewer numbers of individuals can be sustained as we go up the ecological pyramid.**

20. Correct Option: (c)

Explanation:

Ecological Succession

- An important characteristic of all communities is that composition and structure constantly change in response to the changing environmental conditions.
- This change is orderly and sequential, parallel with the changes in the physical environment. **These changes lead finally to a community that is in near equilibrium with the environment and that is called a climax community**.
- The gradual and fairly predictable change in the species composition of a given area is called ecological succession.
- During succession some species colonise an area and their populations become more numerous, whereas populations of other species decline and even disappear.
- Based on the nature of the habitat – whether it is water (or very wet areas) or it is on very dry areas – succession of plants is called hydrach or xerarch, respectively.
- **Hydrarch succession takes place in wetter areas** and the successional series progress from hydric to the mesic conditions.
- As against this, **xerarch succession takes place in dry areas** and the series progress from xeric to mesic conditions. Hence, both hydrarch and xerach successions lead to medium water conditions (mesic) – neither too dry (xeric) nor too wet (hydric).

21. Correct Answer: (D)

Explanation:

- **1st statements is correct**
- **2nd and 3rd statements are incorrect.** The Indian Science Congress Association (ISCA) owes its origin to the foresight and initiative of two British Chemists, namely, Professor J. L. Simonsen and Professor P.S. MacMahon. The 107th Indian Science Congress was inaugurated by PM Narendra Modi at Bangalore.

Facts about Science Status in the world

- India now stands at 3rd position globally, in the number of Peer-reviewed Science and Engineering Publications.
- India has improved its ranking at Innovation Index to 52.
- Government programmes have created more incubators in the last 5 years.
- Technology is being harnessed at a large scale to achieve the objective of Good Governance.

Supplementary Notes

- Recently, PM inaugurates the 107th Indian Science Congress at University of Agricultural Sciences, Bengaluru.
- The theme of **107th Indian Science Congress** is **"Science and Technology: Rural Development".**
- The Congress is to be hosted by Department of Science and Technology.
- The event acts as a common platform for researchers, scientists and academicians. Around 28 plenary sessions are to be held during the event. It includes leading technologies such as Climate Smart Agriculture for food security, challenges in cancer drugs, nano materials for energy, solutions for oil and gas, environment and health care. For the first time, Farmers Science Congress is to be held on the sidelines of Indian Science
- **Farmers Science Congress:** The congress will cover themes of innovation on integrated agriculture. It will also focus on themes of doubling farmers' income, farmer empowerment, conservation, bio diversity, etc. The experts from ICAR (Indian council of Agricultural Research) and UAS (University of Agricultural Sciences) will also participate at the event along with the farmers whose innovative methodologies have brought in huge harvests.
- **Children Science Congress**: The Children Science Congress also called the "Rashtriya Kishre Vaiguanik Sammelana" will also be held alongside 107th India Indian Science Congress. The aim of the congress is to motivate students and increase their participation in scientific and technological fields. Apart from these, women science congress will also be held showcasing women achievements. Also, VC Science congress will be held to address the need of higher education institutions. The event will also hold Science Communicators Meet.

22. Correct answer: (b)

Explanation

Only statement (2) is correct.

- According to this report, the forest area in the country has increased by 5,188 square km in the last two years.
- There is an increase of 42.6 million tonnes in the carbon stock of the country as compared to the last assessment of 2017.

Supplementary notes

Highlights of The India State of Forest Report 2019

- The report mentions that green area covers about 25% of the total geographic area of the country.
- India State of Forest Report 2019 has been prepared by Forest Survey of India (FSI). It is a biannual report.
- The report is prepared after mapping of forests and trees through satellite.
- According to the report, the forest area has increased by 3976 kilometers and the area of trees by 1212 square kilometers in two years.
- According to the report, the three states where forest area has grown the most include Karnataka (1025 km), Andhra Pradesh (990 km) and Kerala (823 km).
- It has also mentioned in the report that the forest area of the northeastern states has decreased except Assam. A marginal increase in forest cover was recorded in Himachal, Uttarakhand, Uttar Pradesh, Delhi, and Bihar.
- The report shows that the forest area has also increased in the infertile regions of Rajasthan.
- Jammu and Kashmir grew 371 sq. km of forest cover while Himachal Pradesh grew 334-sq. km of forest area.
- The report highlights that all hill districts of India has 2,84,006 sq. km of forest area which is 40.30% of the total geographical area of all hill districts of the country.

23. Correct option: (a)

Explanation

- European ministers in charge of the ESA space agency have approved Hera, a mission that will test whether deflection could save humanity from a rogue asteroid.

Supplementary notes

Hera Mission

- Scientists are studying asteroids and trying to find ways to deflect them from a collision course with Earth.
- One such project is the Asteroid Impact and Deflection Assessment (AIDA), which includes NASA's Double Asteroid Redirection Test (DART) mission and the European Space Agency's (ESA) Hera.

Additional information

- ESA and partner NASA will send a pair of spacecraft to a double-asteroid system called Didymos.
- NASA will first crash its DART probe into the smaller asteroid (Didymoon). Hera will arrive later to map the impact crater and measure the asteroid's mass.
- The moon orbiting Didymos, called 'Didymoon' — almost the size of the Giza Pyramid in Egypt, measuring just 160 metres in diametre — will be the smallest asteroid ever explored.
- Hera will carry two CubeSats that can fly extremely close to the asteroid's surface before touching down.
- Those briefcase-sized spacecraft will act like drones, capturing vital data about the impact crater and giving scientists data including the mass of the asteroid that will help them deduce its composition.
- While an asteroid collision is a pretty unlikely event, it's actually preventable, unlike an earthquake or volcanic explosion.
- However, Hera mission won't be the first to reach Didymos. The National Aeronautics and Space Administration (NASA) in USA plan to launch the Double Asteroid Redirection Test (DART) between 2020 and 2021, which will target Didymoon as part of its planetary defence programme.

24. Correct option: (b)

Explanation

- **Statement 1 is incorrect**: The Bill governs the processing of personal data by:
- government,
- companies incorporated in India, and
- foreign companies dealing with personal data of individuals in India

Supplementary notes

Data Protection Bill 2019

- The Bill seeks to provide for protection of personal data of individuals, and establishes a Data Protection Authority for the same.
- The Personal Data Protection bill, drafted by a panel headed by a former Supreme Court judge and submitted to the government last year, is key for how firms including global tech giants Amazon, Facebook, Alphabet's Google and others process, store and transfer Indian consumers' data.
- Broad guidelines on collection, storage and processing of personal data, consent of individuals, penalties and compensation, code of conduct and an enforcement model is likely to be a part of the law.
- Personal data is data which pertains to characteristics, traits or attributes of identity, which can be used to identify an individual.
- The Bill categorises certain personal data as sensitive personal data. This includes financial data, biometric data, caste, religious or political beliefs, or any other category of data specified by the government, in consultation with the Authority and the concerned sectoral regulator.

About data fiduciary-

- A data fiduciary is an entity or individual who decides the means and purpose of processing personal data. Such processing will be subject to certain purpose, collection and storage limitations.
- For instance, personal data can be processed only for specific, clear and lawful purpose. Additionally, all data fiduciaries must undertake certain transparency and accountability measures such as:
  - ➤ implementing security safeguards (such as data encryption and preventing misuse of data), and
  - ➤ Instituting grievance redressal mechanisms to address complaints of individuals. They must also institute mechanisms for age verification and parental consent when processing sensitive personal data of children.

25. Correct answer: (a)

Explanation

- **Statement 2 is incorrect**: The government is targeting to achieve 20 per cent to 30 per cent reduction in Particulate Matter PM10 and PM2.5 concentrations by 2024 keeping 2017 as the base year for the comparison of concentration.

- **Statement 3 is incorrect**: The city-specific Action Plans have been prepared and approved for ground implementation for all 102 non-attainment cities.

Supplementary notes

National Clean Air Programme

- The government is targeting to achieve 20 per cent to 30 per cent reduction in Particulate Matter PM10 and PM2.5 concentrations by 2024 keeping 2017 as the base year for the comparison of concentration.
- Under NCAP, 102 non-attainment cities have been identified based on ambient air quality data for the period 2011 - 2015 and WHO report 2014 - 2018.
- The city-specific Action Plans have been prepared and approved for ground implementation for all 102 non-attainment cities.
- India is committed to clean environment and pollution free air and water. In fact, it is mandated in our constitution.
- The Air (Prevention and Control of Pollution) Act, 1981, was enacted under Art. 253 of the Constitution to implement the decisions taken at the United Nations Conference on Human Environment held at Stockholm in June 1972, in which India participated.

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TEST

DAY - 32

Time Allowed: 30 mins **Maximum Marks: 50**

1. Which of the following statements is/ are correct?

1. Soil Organic Carbon (SOC) represents the largest pool of carbon stock in the forests of India.
2. Despite Madhya Pradesh has the largest area under forest, Arunachal Pradesh has the largest carbon stock in India.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

2. Consider the following statements regarding features of a biome:

1. It is the world's largest land biome.
2. It is characterized by a long winter and short summer.
3. It is considered the richest source of softwood for use in building construction.
4. Spruce and Larch are amongst the major species in this biome.

Which of the following biomes is being described above:

(a) Tundra

(b) Taiga

(c) Temperate Grassland

(d) Tropical forest

3. Arrange the following states into decreasing order of tree diversity in India:

1. Karnataka
2. Tamil Nadu
3. Andhra Pradesh
4. Jammu and Kashmir

Select the correct option using the codes given below:

(a) 1-2-3-4

(b) 2-1-3-4

(c) 3-1-2-4

(d) 4-3-2-1

4. Deserts are formed in regions with less than 25 cm of annual rainfall, or sometimes in hot regions, where there is more rainfall, but unevenly distributed in the annual cycle. In this context consider the following statements:

1. The climate of these biomes is modified by altitude and latitude.
2. The perennial plant like creosote bush, cactus are scattered throughout the desert biomes.
3. The productivity of a given desert is almost directly dependent on the rainfall.

Which of the above statements are correct?

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

5. Which of the following are the findings of the "India State of Forest Report (ISFR) 2019"?

1. There has been a decrease of forest cover in the North-East region except Assam and Tripura.
2. There has been a decrease of forest cover in the tribal districts of India.
3. Karnataka has shown the maximum increase in the forest cover area since the last survey.

Select the correct option using the codes given below:

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1, 2, and 3

(d) 1 and 2 only

6. Which of the following pairs regarding grasslands of India and their location are correctly matched?

1. Banni: Gujarat
2. Shola: Tamil Nadu
3. Vidi: Uttarakhand
4. Chuar: Kerala

Select the correct option using the codes given below:

(a) 1 and 2 only

(b) 1 and 4 only

(c) 3 and 4 only

(d) 2 and 3 only

7. Consider the following features regarding a grassland:

1. Heavy rainfall and long drought
2. Scattered trees
3. Presence of Elephant Grass

Which of the following grasslands is being described above?

(a) Savanna

(b) Prairies

(c) Alpine Meadows

(d) Desert shrubs

8. In which of the following countries Amazon forest is present?

1. Peru
2. Ecuador
3. Argentina
4. France
5. Bolivia

Select the correct option using the codes given below:

(a) 3 and 5 only

(b) 1, 2, and 3 only

(c) 1, 2, 4, and 5 only

(d) 1, 2, 3, 4, and 5

9. Consider the following statements regarding the tropical seasonal forests:

1. They are known as monsoon forests.
2. They are present only in South Asia.

Which of the above statements is/are ***incorrect?***

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

10. Cold and hot deserts With reference to the Montane Wet temperate forests, consider the following statements:

1. These are found in the Kerala and Arunachal Pradesh.
2. They receive a minimum rainfall of 2000 mm in Arunachal Pradesh.
3. Oak and Champa trees are found in these forests.

Which of the above statements are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

11. Which of the following are *not* features of tropical rainforests?

1. Soils are rich in nutrients.
2. Woods are good for export.
3. Evenly distributed rainfall

Select the correct option using the codes given below:

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) None of the above

12. Match the following Lists:

Grasslands	*Countries*
A. Canterbury Plains	1. Uruguay
B. Tussock Grasslands	2. Ukraine
C. Campos	3. Australia
D. Steppes	4. New Zealand

Select the correct option from the codes given below the lists:

	A	B	C	D
(a)	2	3	4	1
(b)	3	4	1	2
(c)	4	2	1	3
(d)	4	3	1	2

13. Consider the following statements:

1. They are found between 25^0N and 25^0S latitudes.
2. Presence of these can save lives and property during natural hazards like cyclones, storm surges, and erosion.
3. They are adapted to the low oxygen (anoxic) conditions.

About which of the following plant species these statements are?

(a) Corals

(b) Mangroves

(c) Cactus

(d) Seagrass

14. Which of the following organizations maintains the World Database on Protected Areas?

(a) IUCN

(b) UN Environment

(c) UNESCO

(d) None of the above

15. Consider the following pairs of forest types and corresponding states in India:

1. Tropical Wet evergreen forests: Gujarat
2. Tropical Semi-evergreen forests: Maharashtra
3. Tropical thorn forests: Delhi

Which of the above pairs is/are correctly matched?

(a) 3 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2, and 3

16. Consider the following statements regarding Biome:

1. Two biomes can never be alike.
2. A biome is not an ecosystem.
3. Boundaries between two biomes are always sharply defined.

Which of the following statements is/are correct?

(a) 1 and 3 only

(b) 1 and 2 only

(c) 2 only

(d) 2 and 3 only

17. Consider the following statements:

1. It means a "barren land" since they are found where environmental conditions are very severe.
2. Typical vegetation is cotton grass, sedges, dwarf heath, willows, birches and lichens.
3. On the South Pole, it is very small since most of it is covered by ocean.
4. Mammals of the this region have large body size, small tail and small ear.

Which type of biome has been defined in the above statements?

(a) Desert

(b) Forest

(c) Taiga

(d) Tundra

18. Which of the following state has not declared a State Butterfly yet?

(a) Tamil Nadu

(b) Karnataka

(c) Kerala

(d) Andhra Pradesh

19. Consider the following statements regarding "Ansupa Lake" which has been recently in news.

1. Ansupa Lake is one of the largest fresh water lake of Odisha
2. It was created by Mahanadi and got a shape like the hoof of a horse.
3. The lake is surrounded with high hills.

Which of the statements given above is/are correct?

(a) 1 and 3 only

(b) 2 only

(c) 2 and 3 only

(d) 1,2 and 3

20. Consider the following statements.

1. This animal has been accorded protection from trade for the first time.
2. There is currently only one recognized species, with nine sub-species of this particular animal.
3. They have been listed as 'vulnerable' on the International Union for Conservation of Species Red List, with some sub-species classified as 'endangered" or 'critically endangered'.

The above statements are related to which one of the following animal?

(a) Giraffe

(b) Rhino

(c) Monkey

(d) Tardigrade

21. With reference to Ebola Virus Disease (EVD), consider the following statements

1. It was first discovered in Uganda.
2. People can get EVD through direct contact with an infected animal (bat or nonhuman primate) or a sick or dead person infected with Ebola virus.

Choose the correct option from the following

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

22. National Green Corps 'Eco Club' Programme that was in news recently aims at

(a) To provide opportunities for children to understand the environment and environmental problems through school eco-clubs.

(b) To make polluting industries conscious of the importance of the environment for the existence of life.

(c) To conserve tiger population

(d) To protect the endangered wildlife

23. What are the various problems that currently ail Indian oil and gas sector?

1. Declining domestic crude production
2. Large crude import bills
3. Inadequate transmission & distribution infrastructure
4. Large share of MNCs

Choose the correct option

(a) 1, 2 and 3

(b) 1 and 2

(c) 1, 2, 3 and 4

(d) 3 and 4

24. Consider the following statements regarding Indian Railway Management Service (IRMS):

1. It has unified the existing eight Group A services of the Railways into a Central Service.
2. Unification of services had been recommended by various committees for reforming Railways including - the Prakash Tandon Committee (1994)

3. Decisions regarding IRMS have been taken by the Railway Ministry.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

25. Consider the following statements regarding SDG India Index,

1. 2019 will be the second edition of the Sustainable Development Goals (SDG) India Index.
2. The index documents the progress made by India's States and Union Territories towards implementing the 2030 SDG targets.
3. It has been developed in collaboration with the Ministry of Statistics and Programme Implementation (MoSPI), the United Nations in India, and the Global Green Growth Institute.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

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ANSWER HINTS

DAY - 32

1. Correct Option: (c)

Explanation:

Carbon Stock in India

- Under the current assessment the total carbon stock in the country's forest is estimated 7,124.6 million tonnes and there an increase of 42.6 million tonnes in the carbon stock of country as compared to the last assessment of 2017. The annual increase in the carbon stock is 21.3 million tonnes, which is 78.2 million tonnes CO2 eq.
- **Soil Organic Carbon (SOC) represents the largest pool of carbon stock in forests, which has been estimated at 4,004 million tonnes. The SOC contributes 56% to the total forest carbon stock of the country.**
- **Arunachal Pradesh has the largest carbon stock (1051 million tonnes) in India.**
- Madhya Pradesh has the second-largest carbon stock despite it has the largest forest cover. This is because Arunachal Pradesh has tropical wet evergreen and semi-evergreen forests of high canopy and tree diversity.

2. Correct Option: (b)

Explanation:

Coniferous forest (Boreal Forest/Taiga)

- **The taiga or boreal forest is the world's largest land biome.** It is found in North America, Eurasia, northern Mongolia, and northern Japan.
- Cold regions with high rainfall, strong seasonal climates with **long winters and short summers** are characterized by boreal coniferous forest.
- Boreal forest soils are characterized by thin podzols and are rather poor. Both because the weathering of rocks proceeds slowly in cold environments and because the litter derived from conifer needle (leaf) is decomposed very slowly and is not rich in nutrients.
- These soils are acidic and are mineral deficient.
- There are four major species in the coniferous forests.
  - Pine, e.g. white pine, red pine, Scots pine, Jackpine, lodgepole pine.
  - Fir, e.g. Douglas fir and balsam fir.
  - **Spruce.**
  - **Larch.**
- The coniferous forest belts of Eurasia and North America are **the richest sources of softwood for use in building construction,** furniture, matches, paper and pulp, rayon and other branches of the chemical industry. The world's greatest softwood producers are U.S.S.R., U.S.A., Canada, and the Fennoscandian countries (Finland, Norway, and Sweden).

3. Correct Option: (a)

Explanation:

Tree diversity in India

- **According to the "India State of Forest Report (ISFR) 2019, Karnataka has the highest tree richness, followed by Tamil Nadu and Andhra Pradesh.**
- **Low tree richness has been noticed in Jammu and Kashmir, Punjab, and Haryana.**

4. Correct Option: (d)

Explanation:

Desert Ecosystem

- Deserts are formed in regions with less than 25 cm of annual rainfall, or sometimes in hot regions where there is more rainfall but unevenly distributed in the annual cycle.

- Lack of rain in the mid-latitude is often due to stable high-pressure zones; deserts in temperate regions often lie in "rain shadows", that is, where high mountains block off moisture from the seas.
- **The climate of these biomes is modified by altitude and latitude. At high altitudes and at a greater distance from the equator the deserts are cold and hot near equator and tropics**.
- **The perennial plant like creosote bush, cactus are scattered throughout the desert biome**s.
- In shallow depressed areas with salt deposits greasewood, sapwood and salt grasses are common.
- **Because water is the dominant limiting factor, the productivity of a given desert is almost directly dependent on the rainfall.** Where soils are suitable, irrigation can convert deserts into productive agricultural land.
- As the large volume of water passes through the irrigation system, salts may be left behind that will gradually accumulate over the years until they become limiting unless means of avoiding this difficulty are devised.

5. Correct Option: (c)

Explanation:

Major findings of the India State of Forest Report (ISFR) 2019

- Area-wise Madhya Pradesh has the largest forest cover in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.
- In terms of forest cover as a percentage of total geographical area, the top five States are Mizoram (85.41%), Arunachal Pradesh (79.63%), Meghalaya (76.33%), Manipur (75.46%) and Nagaland (75.31%).
- The Mangrove ecosystems are unique & rich in biodiversity and they provide numerous ecological services.
- Mangrove cover has been separately reported in the ISFR 2019 and the total mangrove cover in the country is 4,975 sq km. An increase of 54 sq Km in mangrove cover has been observed as compared to the previous assessment of 2017. The top three states showing mangrove cover increase are Gujarat (37 sq km) followed by Maharashtra (16 sq km) and Odisha (8 sq km).
- Wetlands within forest areas form important ecosystems and add richness to the biodiversity in forest areas, both of faunal and floral species.
- Due to the importance of wetlands, FSI has carried out an exercise at the national level to identify wetlands of more than 1 ha within RFA.
- There are 62,466 wetlands covering 3.8% of the area within the RFA/GW of the country.
- The total forest cover in the tribal districts is 4,22,351 sq km, which is 37.54% of the geographical area of these districts.
- **There has been a decrease of 741 sq km of forest cover within the Recorded Forest Area/ Green Wash (RFA/GW) in the tribal districts and an increase of 1,922 sq km outside.**
- Total forest cover in the North-Eastern region is 1,70,541 sq km, which is 65.05% of its geographical area. There has been a decrease of forest cover to the extent of 765 sq km (0.45%) in the region. **Except for Assam and Tripura, all the States in the region show a decrease in forest cover.**

6. Correct Option: (a)

Explanation:

Grasslands of India

- Grasslands occupy nearly 24 percent of the geographical area in India.
- The major types of grasslands in India are as follows:
  - Alpine moist meadows of the Greater Himalayas;
  - Alpine arid pastures or steppe formations of the trans-Himalayas;
  - **Chaurs of the Himalayan foothills;**
  - Terai grasslands on the Gangetic and the Brahmaputra floodplains;
  - Phumdis or floating grasslands of Manipur;
  - **Banni and Vidis of Gujarat**;
  - Savannas of western and peninsular India;
  - Plateau and valley grasslands in the Satpuras and Maikal hills;
  - Dry grasslands of the Andhra Pradesh and Tamil Nadu plains and
  - **Shola grasslands of the Western Ghats including Tamil Nadu**.

7. Correct Option: (a)

Explanation:

Savanna

- **Savanna is grassland with scattered individual trees.** Savannas of one sort or another cover almost half the surface of Africa and large areas of Australia, South America, and India.
- Savanna has both a dry and a rainy season. Savannas are always found in warm or hot climates where the annual rainfall is from about 50.8 to 127 cm (20-50 inches) per year**. It is crucial that the rainfall is concentrated in six or eight months of the year, followed by a long period of drought** when fires can occur. If the rain were well distributed throughout the year, many such areas would become tropical forest.
- The savanna landscape is typified by tall grass and short trees. It is rather misleading to call the savanna 'tropical grassland', because trees are always present with the luxuriant tall grass. The terms 'parkland' or 'bush-veld' perhaps describe the land¬scape better.
- In true savanna lands, the grass is tall and coarse, growing 6 to 12 feet high. **The elephant grass** may attain a height of even 15 feet. The grass tends to grow in compact tufts and has long roots that reach down in search of water. It appears greenish and well-nourished in the rainy season but turns yellow and dies down in the dry season that follows. The grass lies dormant throughout the long, rainless period and springs up again in the next rainy season. In between the tall grass are scattered short trees and low bushes. As the rainfall diminishes towards the deserts the savanna merges into thorny scrub.

8. Correct Option: (c)

Explanation:

Amazon rainforest

- The Amazon rainforest is an evergreen tropical rainforest that covers most of the Amazon basin of South America.
- This region includes territory belonging to nine nations.
- **The majority of the forest is contained within Brazil, with 60% of the rainforest, followed by Peru with 13%, Colombia with 10%, and with minor amounts in Venezuela, Ecuador, Bolivia, Guyana, Suriname and France (French Guiana).**

9. Correct Option: (b)

Explanation:

Tropical Seasonal Forests

- **Tropical seasonal forests also are known as monsoon forests** occur in regions where total annual rainfall is very high but segregated into pronounced wet and dry periods.
- **This kind of forest is found in South East Asia, central and south America, northern Australia, western Africa and tropical islands of the Pacific as well as in India.**

10. Correct Option: (d)

Explanation:

Montane Wet Temperate Forests

- In the North, Montane wet temperate forests are found in the region to the east of Nepal **into Arunachal Pradesh, receiving a minimum rainfall of 2000 mm.**
- In the North, there are three layers of forests: the higher layer has mainly coniferous, the middle layer has deciduous trees such as the **oak and the lowest layer is covered by rhododendron and Champa.**
- **In the South, it is found in parts of the Niligiri Hills, the higher reaches of Kerala**. The forests in the northern region are denser than in the South. Rhododendrons and a variety of ground flora can be found here

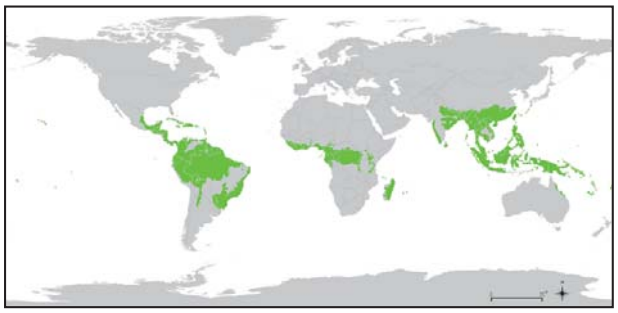
11. Correct Option: (a)

Explanation:

Tropical rainforests

- Tropical forests are characterized by the greatest diversity of species. They occur near the equator, within the area bounded by latitudes 23.5 degrees N and 23.5 degrees S. One of the major characteristics of tropical forests is their distinct seasonality: winter is absent, and only two seasons are present (rainy and dry). The length of daylight is 12 hours and varies little.
- **Precipitation is evenly distributed throughout the year, with annual rainfall exceeding 200 cm.**
- **Soil is nutrient-poor and acidic. Decomposition is rapid and soils are subject to heavy leaching.**

- **It has great potential in timber resources, but commercial extraction is difficult because the trees do not occur in homogenous stands, there are no frozen surfaces to facilitate logging and the tropical hardwoods are sometimes too heavy to float in the rivers, even if these flow in the desired directions. Hence, timbers have less potential for the export.**
- The equatorial vegetation comprises a multitude of evergreen trees that yield tropical hardwood, e.g. mahogany, ebony, greenheart, cabinet woods, and dyewoods. There are smaller palm trees, climbing plants like the lianas or rattan which may be hundreds of feet long and epiphytic and parasitic plants that live on other plants. Under the trees grow a wide variety of ferns, orchids, and lalang.
- Unlike the temperate forests, where only a few species occur in a particular area, the trees of the tropical rain forests are not found in pure stands of a single species. It has been estimated that in the Malaysian jungle as many as 200 species of trees may be found in an acre of forest.



12. Correct Option: (d)

Explanation:

Temperate grasslands

- All the above grasslands are the example of Temperate grassland. These are areas of open grassy plains that are very sparsely populated with trees.
- There are various names of the grassland according to the regions.
- **Steppe**: These are the grassland in Central Asian countries such as Russia, **Ukraine**, Mongolia, Kazakhstan, China, etc.
- Prairies: These are the temperate grasslands of North America(the USA and Canada).
- Veldts: These are found in Southern African Countries such as Zimbabwe, South Africa, etc.
- **Canterbury Plains**: These are found in **New Zealand.**
- **Campos**: These are found in Brazil and **Uruguay**.
- **Tussock Grasslands: These are found in Australia and New Zealand.**
- Pampas is found in Argentina.

13. Correct Option: (b)

Explanation:

Mangroves.

- A mangrove is a shrub or small tree that grows in coastal saline or brackish water.
- They occur worldwide in the tropics and subtropics, mainly between **latitudes 25° N and 25° S**.
- **They are salt-tolerant trees, also called halophytes, and are adapted to live in harsh coastal conditions.**
- Mangroves contain a complex salt filtration system and complex root system to cope with salt water immersion and wave action.
- They are **adapted to the low oxygen (anoxic) conditions** of waterlogged mud.
- **Presence of Mangrove ecosystems on the coastline can save lives and property during natural hazards like cyclones, storm surges, and erosion, as well**.
- The deltas of the Ganga, the Mahanadi, the Krishna, the Godavari, and the Kaveri are covered with mangrove vegetation**.**

14. Correct Option: (a)

Explanation:

World Database on Protected Areas

- The World Database on Protected Areas (WDPA) is the most comprehensive global database on terrestrial and marine protected areas.
- It is a joint project between the United Nations Environment Programme (UNEP) and the International Union for Conservation of Nature (IUCN), **managed by UNEP World Conservation Monitoring Centre (UNEP-WCMC).**
- The headquarter of IUCN is at Gland, Switzerland.

15. Correct Option: (c)

Explanation:

Forest types of India

- **Tropical wet evergreen forests are present in Arunachal Pradesh, Assam, Nagaland, Goa, Karnataka, Kerala, Tamil Nadu, and A&N Islands.**
- **Tropical semi-evergreen forests are present in 15 states/UTs in India including Maharashtra.**
- **Tropical thorn forest is present in 11 states/UTs in India including Delhi.**

16. Correct Option: (b)

Explanation:

Biome

- Boundaries between biomes are **not always sharply defined**. For instance, there are sometimes transition zones between grassland and forest biomes. Coasts and wetlands are transition zones between terrestrial and aquatic biomes.
- **A biome is NOT an ecosystem**, although in a way it can look like a massive ecosystem. If we take a closer look, we will notice that plants or animals in any of the biomes have special adaptations that make it possible for them to exist in that area.
- **No two biomes are alike**. The climate determines the boundaries of a biome and abundance of plants and animals found in each one of them. The most important climatic factors are temperature and precipitation.

17. Correct Option: (d)

Explanation:

Tundra Biome

- **Tundra means a "barren land" since they are found where environmental conditions are very severe.** There are two types of tundra- arctic and alpine.
- Distribution: Arctic tundra extends as a continuous belt below the polar ice cap and above the tree line in the northern hemisphere. It occupies the northern fringe of Canada, Alaska, European Russia, Siberia and island group of Arctic Ocean. **On the South Pole, tundra is very small since most of it is covered by ocean**. Alpine tundra occurs at high mountains above the with respect to Arctic mountains are found at all latitudes therefore alpine tundra shows day and night temperature variations.
- Flora and fauna: Ty**pical vegetation of arctic tundra is cotton grass, sedges, dwarf heath, willows, birches and lichens**. Animals of tundra are reindeer, musk ox, arctic hare, caribous, lemmings and squirrel.
- Most of them have long life e.g. arctic willow has a life span of 150 to 300 years.
- They are protected from chillness by the presence of thick cuticle and epidermal hair. **Mammals of the tundra region have large body size, small tail and small ear to avoid the loss of heat from the surface**.

18. Correct Option: (d)

Explanation:

- **Option (d) is correct:** Tamil Nadu Becomes Fifth Indian State to Declare a State Butterfly, after Maharashtra (Blue Mormon), Uttarakhand (Common peacock), Karnataka (Southern birdwings) and Kerala (Malabar banded peacock) to bestow a state emblem status to one of its colorful insects.

Supplementary notes:

- Tamil Nadu Becomes Fifth Indian State to Declare a State Butterfly.
- Tamil Nadu has recently declared Tamil Yeoman (Cirrochroa thais) as its state butterfly to symbolize its rich natural and cultural heritage, in a move aimed at boosting the conservation efforts of the attractive insects.
- Locally known as Tamil Maravan meaning 'Tamilian Warrior', the canopy butterfly, belongs to the family of brush-footed butterflies or the Nymphalid.
- This is the latest addition to Tamil Nadu's existing symbols from the natural world – palmyra as the state tree, gloriosa lily as the state flower, emerald dove as the state bird, and jackfruit as the state fruit and Nilgiri tahr as the state animal.
- This butterfly species is endemic to Western Ghats.
- Once the species is declared as a state butterfly, this will help channelizing government funds towards a particular environmental cause.
- Tamil Nadu has a total of 32 species of butterflies endemic to the state.

- It has become the fifth India state after Maharashtra (Blue Mormon), Uttarakhand (Common peacock), Karnataka (Southern birdwings) and Kerala (Malabar banded peacock) to bestow a state emblem status to one of its colorful insects.
- Both southern bird wings, which is the largest butterfly species found in India, and Malabar banded peacocks are, like the Tamil Yeoman, endemic to the Western Ghats as well.

19. Correct Option: (d)

Explanation:

All the above statements are correct

Supplementary notes:

Ansupa Lake

- The Odisha Wetland Authority has approved implementation of an integrated management plan for Chilika, country's largest brackish water lagoon, and Ansupa, State's largest freshwater lake.
- The five-year management of lakes is intended at strengthening livelihood of thousands of fishermen relying on the two water-bodies. Besides, tourism promotion and conservation of ecology will be taken up.
- **Ansupa Lake is one of the largest fresh water lake of Odisha situated in Banki, Cuttack.**
- **It was created by Mahanadi and got a shape like the hoof of a horse.**
- It spreads over a vast area of 141 hectare, and surrounded by Saranda Hills in its length.
- **The lake is surrounded with high hills. One can have a view of high hills around the lake.**

20. Correct Option: (a)

Explanation:

Option (a) is correct.

Supplementary notes:

Giraffe

- The giraffe has been placed in Appendix II of CITES, which places prohibitions on uncontrolled trade in a species. The Conference of Parties (CoP) to the Convention on International Trade in Endangered Species or CITES in Geneva passed a resolution to place the giraffe in Appendix II of CITES.
- Giraffes, those tall, stately and graceful animals of Africa's savannahs, have been accorded protection from unregulated trade as the world finally woke up to their 'silent extinction'.
- The Appendix II listing was proposed by Central African Republic, Chad, Kenya, Mali, Niger and Senegal.
- "Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival,"
- Giraffes once ranged over much of the semi-arid savannah and savannah woodlands of Africa. But their numbers have plummeted dramatically — by up to 40 per cent over the last 30 years — due to threats including international trade in their parts, as well as habitat loss, civil unrest and illegal hunting.
- While giraffes fall prey to poaching for bush meat, bones, skin and tail hair, there is also a significant amount of international trade in their bone carvings and trophies.
- There is currently only one recognized species of giraffe, with nine sub-species. They have been listed as 'vulnerable' on the International Union for Conservation of Species Red List since 2016, with some sub-species classified as 'endangered" or 'critically endangered'.
- Five of the nine sub-species have only a small wild population, while four have a decreasing population trend. All are affected by trade.
- While the Appendix II listing will not stop all trade in giraffe parts, it will ensure this is not contributing to further population declines and provide global scale data that could not otherwise be obtained.

21. Correct option: (b)

Explanation

- **Statement 1 is incorrect**: Ebola virus was first discovered in 1976 near the Ebola River in what is now the Democratic Republic of Congo.

Supplementary notes

Ebola epidemic

- Health officials in **Eastern Congo** have documented the **first relapse of the current Ebola epidemic**.

- The **Ebola outbreak in Democratic Republic of Congo has so far infected more than 3,300 people** and killed more than 2,200 since the middle of last year, making it the second-worst on record.
- According to WHO, this recent r**elapse happened in the Aloya district** where a motorcycle taxi operator is said to have come into contact with 33 people potentially the cause of 11 new confirmed Ebola cases in the past week.

About Ebola

- Ebola Virus Disease (EVD) is **a rare and deadly disease in people and nonhuman primates**. The viruses that cause EVD are located mainly in sub-Saharan Africa.
- People can get EVD **through direct contact with an infected animal** (bat or nonhuman primate) **or a sick or dead person infected with Ebola virus**.
- The **US Food and Drug Administration (FDA) has not yet approved a vaccine or treatment** for Ebola virus infection. It is caused by an infection with a group of viruses within the genus Ebolavirus:
  - Ebola virus (species Zaire ebolavirus)
  - Sudan virus (species Sudan ebolavirus)
  - Taï Forest virus (species Taï Forest ebolavirus, formerly Côte d'Ivoire ebolavirus)
  - Bundibugyo virus (species Bundibugyo ebolavirus)
  - Reston virus (species Reston ebolavirus)
  - Bombali virus (species Bombali ebolavirus)
- Of these, **only four (Ebola, Sudan, Taï Forest, and Bundibugyo viruses)** are known to cause disease in people.
- Ebola virus was **first discovered in 1976 near the Ebola River in what is now the Democratic Republic of Congo**.
- It **kills up to 90% of people** who are infected.

22. Correct Answer: (a)

Explanation: Option (A) is correct.

Supplementary Notes:

- Recently, the Ministry of Environment, Forest and Climate Change (MoEFCC) organized an annual meeting of state nodal agencies implementing the 'Eco club' programme for the first time.
- National Green Corps is a programme started in 2001-02 by the Ministry of Environment Forests and Climate Change.
- **Aim:** To provide opportunities for children to understand the environment and environmental problems through school eco-clubs.
- The programme is a sub part of Environment Education Awareness and Training (EEAT) which is a central sector scheme of the Ministry of the Environment continuing since 1983-84.

Objectives of the Programme

- To impart knowledge to school children through hands-on experience, about their immediate environment, interactions within it and the problems therein.
- To develop requisite skills of observation, experimentation, survey, recording, analysis and reasoning for conserving the environment through various activities.
- To inculcate the proper attitude towards the environment and its conservation through community interactions.
- To sensitize children to issues related to environment and development through field visits and demonstrations.
- To promote logical and independent thinking among children so that they are able to make the right choices in a spirit of scientific inquiry.
- To motivate and stimulate young minds by involving them in action projects related to environmental conservation.

Implementation

- The scheme is being operated through Eco-clubs of 50-60 students having an interest in environment related issues, formed in member schools.
- Eco clubs are supervised by a Teacher In-charge who is selected from among the teachers of the member schools on the basis of his/her interest in environment related issues.
- There is District Implementation and Monitoring Committee to supervise, organise training for In-charge teachers and monitor periodically the implementation of scheme at the District level.
- There is a State Steering Committee for guidance, direction and to oversee the implementation of the scheme.
- The State Nodal Agency coordinates the implementation of the scheme in the State and organize related activities like training to Master Trainers.

- The National Steering Committee will give overall direction to the programme and ensure linkages at all levels.

23. Correct Answer: (a)

- **Explanation: 4th statement is incorrect.** Despite being one of the largest consumers of energy, India has a low share of MNCs in the domestic market.

Supplementary Notes

Key Problems of Oil and Gas Sector

- **Declining domestic crude production:** Most of the producing fields (in Cambay, Assam-Arakan and Mumbai Offshore) are maturing or have already matured. Due to inadequate new oil and gas discoveries and subsequent development, India is witnessing a decline in crude production.
- **Large crude import bills:** In 2018-19, India imported more than 80% of its crude consumption and spent in excess of $110 billion.
- **Inadequate transmission & distribution infrastructure:** India needs to invest heavily in midstream and downstream sector to overcome infrastructure constraints in LNG, gas pipelines and CGD.
- **Technology constraints:** The country needs investment in exploring and developing Category-2 and Category-3 basins. However, Indian operators do not have the requisite technology and experience in this area.
- **Low share of MNCs:** Despite being one of the largest consumers of energy, India has a low share of MNCs in the domestic market.
- **Environmentally friendly fuels:** India continues to rely heavily on coal and petroleum products to meet its energy needs.

24. Correct option: (a)

Explanation

- **Statement 3 is incorrect:** The Union Cabinet chaired by Prime Minister has approved a transformational organisational restructuring of the Indian Railways.

The reforms include:

- Unification of the existing eight Group A services of the Railways into a Central Service called Indian Railway Management Service (/RMS)
- Re-organisation of Railway Board on functional lines headed by CRB with four Members and some Independent Members
- The existing service of Indian Railway Medical Service (IRMS) to be consequently renamed as Indian Railway Health Service (IRHS)
- Railways has an ambitious programme to modernise and provide the highest standards of safety, speed and services to the passengers with a proposed investment of Rs. 50 lakh crore over the next 12 years.
- Unlike Railway systems the world over, which have been corporatized, Indian Railways is managed by the Government directly. It is organised into various departments such as Traffic, Civil, Mechanical, Electrical, Signal & Telecom, Stores, Personnel, and Accounts etc.
- These departments are vertically separated from top to bottom and are headed by a Secretary level officer (Member] in the Railway Board. This organization of the department runs deep down to the grassroot level of the Railways.
- Unification of services will end this 'departmentalism', promote smooth working of Railways, expedite decision making, create a coherent vision for organisation and promote rational decision making.
- Unification of services has been recommended by various committees for reforming Railways including - the Prakash Tandon Committee (1994), Rakesh Mohan Committee (2001), Sam Pitroda Committee (2012) and Bibek Debroy Committee (2015).
- It is now proposed to create a unified Group A' service called "Indian Railways Management Service" (IRMS) from the next recruitment cycle. Creation of the new service will be done in consultation with DoPT and UPSC to facilitate recruitment in the next recruitment year. It will enable Railways to recruit engineers/non-engineers as per need, and offer equality of opportunity to both categories in career progression.
- The modalities and unification of the services will be worked out by the Ministry of Railways in consultation with DoPT with the approval of Alternate Mechanism to be appointed by Cabinet in order to ensure fairness and transparency. The process shall be completed within a year.
- Railway board will no longer be organised on departmental lines, and replaced with a leaner structure organised on functional

lines. It will have a Chairman, who will act as 'Chief Executive Officer (CEO)' along with 4 Members responsible for Infrastructure, Operations & Business Development, Rolling Stock and Finance respectively.

25. Correct option: (d)

Explanation

- **All three Statements are correct:** NITI Aayog will launch the second edition of the Sustainable Development Goals (SDG) India Index, which documents the progress made by India's States and Union Territories towards implementing the 2030 SDG targets, on 30 December 2019 at NITI Aayog, New Delhi.
- The SDG India Index and Dashboard 2019–20 have been developed in collaboration with the Ministry of Statistics and Programme Implementation (MoSPI), the United Nations in India, and the Global Green Growth Institute.

Supplementary notes

- NITI Aayog has the mandate of overseeing the adoption and monitoring of SDGs in the country, at the national and sub-national level.
- The SDG India Index, whose first edition was launched in December 2018, was the first tool developed by any large country to monitor the progress towards achieving SDGs at the sub-national level.
- The SDG India Index and Dashboard 2019 tracks the progress of and ranks all States and UTs on 100 indicators drawn from MoSPI's National Indicator Framework, comprising 306 indicators.
- It indicates where the country and its States and UTs currently are on SDG implementation, and charts the distance to be travelled to reach the SDG targets.
- The Index covers 16 out of 17 SDGs and a qualitative assessment on Goal 17. This marks an improvement over the 2018 Index, which covered only 13 goals.

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TEST

DAY - 33

Time Allowed: 30 mins **Maximum Marks: 50**

1. Consider the following statements regarding Seaweeds:

1. They are small rooted well-developed plants of high economic and medicinal values.
2. They grow only on the surface of the seawaters.
3. In India, only the Andaman and Nicobar islands have the seaweeds.

Which of the above statements are ***incorrect***?

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1, 2 and 3

2. Consider the following statements regarding phytoplanktons diversity:

1. Phytoplanktons are also known as microalgae.
2. Dinoflagellates and Diatoms are the two main classes of phytoplankton.
3. While the bodies of the Dinoflagellates are covered with complex shells, the Diatoms are shell-less organism.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1, 2, and 3

3. Consider the following statements:

1. The hard coral reefs are entirely built by the polyps.
2. Soft corals do not always have zooxanthellae.
3. the Mesoamerican Reef is the second-largest reef system in the world.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2, and 3

4. What are the features of the Seagrasses?

1. Seagrasses are not grass but type of seaweeds.
2. They are found in the shallow salty and brackish waters.
3. They are one of the most productive ecosystems in the world.

Select the correct option using the codes given below:

(a) 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2, and 3

5. Which of the following countries are included in the "Coral Triangle"?

1. Australia
2. New Zealand
3. Indonesia
4. Papua New Guinea
5. Solomon Islands

Select the correct option using the codes given below:

(a) 1, 2, and 4 only

(b) 3, 4, and 5 only

(c) 1 and 2 only

(d) 1, 2, 3, 4, and 5

6. The largest freshwater lake of Northeast India is in which state?

(a) Assam

(b) Manipur

(c) Mizoram

(d) Tripura

7. Consider the following statements regarding 'Neuston':

1. These are found living at the surface of the ocean.
2. They are just like reefs on the seafloor.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

8. Which of the following statements regarding Fjord is/are *incorrect*?

1. It is a type of estuary created by the glaciers.
2. Fjords tend to have more input of freshwater than the saltwater.

Select the correct option from the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

9. Recently, ten more wetlands from India get the Ramsar site tag. In this regard, which of the following pairs is/ are correctly matched?

	Ramsar sites:	***States***
1.	Nawabganj:	Uttar Pradesh
2.	Sarsai Nawar:	Maharashtra
3.	Keshopur-Miani:	Punjab

Select the correct option from the codes given below:

(a) 1 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2, and 3

10. Arrange the above Ramsar sites in North-South direction:

A. Pong Dam

B. Harike

C. Loktak lake

D. Nalsarovar

Select the correct option from the codes given below:

(a) A-B-C-D

(b) C-A-B-D

(c) C-A-D-B

(d) B-C-D-A

11. Which of the following statements regarding coral reefs is/are correct?

1. Not all Coral reefs require photosynthesis to survive.
2. Over half of all the known coral species are found in the deep, dark ocean.

Select the correct option from the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

12. Consider the following statements regarding a lake:

1. It is the first lake in India, declared as the Biodiversity Heritage Site.
2. It is in Sangareddy district of Telangana.

Which of the following lakes has been described above?

(a) Pulicat Lake

(b) Kolleru Lake

(c) Ameenpur lake

(d) Fox Sagar Lake

13. Which of the following is *not an* example of the Lentic ecosystem?

(a) Pond

(b) Lake

(c) Swamps

(d) Rivers

14. In aquatic ecosystems, oxygen is dissolved in water, where its concentration varies constantly depending on factors that influence the input and output of oxygen in the water. In this context, consider the following statements:

1. Oxygen enters the aquatic ecosystem through the air-water interface.
2. The amount of dissolved oxygen present in water is not influenced by temperature.

Which of the above statements is/are ***incorrect?***

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

15. Which of the following statements is/ are correct regarding the Neuston?

1. These are found living at the bottom of the sea-level.
2. They obtain their food within the water like back-swimmers.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

16. Consider the following statements regarding various zones in an aquatic ecosystem:

1. The depth of the photic zone depends on the transparency of water.
2. Only respiration activity takes place in the aphotic zone.
3. No photosynthesis activity takes place in the aphotic zone.

Which of the following statements is/are correct?

(a) 1, 2 and 3

(b) 1 only

(c) 3 only

(d) 1 and 3 only

17. What is the possible implication of adding fertilizer to aquatic systems?

(a) Increased growth of phytoplankton and hypoxic conditions

(b) Increased growth of phytoplankton and hyperoxic conditions

(c) Decreased growth of phytoplankton and hypoxic conditions

(d) Decreased growth of phytoplankton and hyperoxic conditions

18. What is Red Tide?

(a) It is a process in which algal blooms produce toxins that affect aquatic organisms and humans.

(b) The red color of ocean tides due to the reflection of the sunlight

(c) It is a phenomenon where phytoplankton species contain pigments and "bloom" such that the human eye perceives the water to be discolored

(d) None of the above.

19. What are the reasons behind the removal of the nutrients from a lake?

1. Deepwater abstraction
2. Harvest of fishes
3. Removal of sludge

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

20. Which of the following pair are *incorrectly* matched regarding the types of lakes on the basis of nutrient content in India?

1. Oligotrophic: highly nutrient-rich
2. Mesotrophic: moderate nutrients
3. Eutrophic: very low nutrients

Select the correct answer using the code given below:

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

21. With reference to World Malaria Report 2019, consider the following statements

1. It provides a comprehensive update on global and regional malaria data and trends.
2. Africa and India saw the maximum dip in malaria cases between 2017 and 2018.

Which of the following statement is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

22. Recently, the Central Water Commission (CWC) has reported that the samples from two-thirds of the water quality stations spanning India's major rivers have a heavy metal contamination problem. Consider the following statements regarding it

1. The exercise was limited to surface water and did not cover groundwater contamination.
2. The most common heavy metal found was iron.
3. Arsenic and zinc are the two toxic metals whose concentration was always obtained within the limits.

Which of the following statement is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

23. Consider the following statements about International Financial Services Centres Authority

1. An international financial services centre caters to customers outside the jurisdiction of domestic economy, dealing with flows of finance, financial products and services across borders.
2. It was set up in 2018 with headquarter in Mumbai.

Which of the above statement(s) is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) None

24. In which of the following case Supreme Court held that creamy layer principle should be applied to the SC and ST communities?

(a) M. Nagaraj v. Union of India (2006)
(b) Jarnail Singh v. Lachhmi Narain Gupta case of 2018
(c) Keshavananda Bharti Case (1973)
(d) Indra Sawhney v. Union of India (1992)

25. Consider the following statements about Human Development Report 2019

1. The annual HDI 2019 report, ranked India at the 129th position, one rank above last year's ranking, out of a total 189 countries.
2. India remains the home to 28 percent of global poor
3. HDI was created by Indian Economist Amartya Sen.

Which of the above statement(s) is/are correct?

(a) 1 only
(b) 2 only
(c) 1 and 2 only
(d) 1, 2 and 3

ANSWER HINTS

DAY - 33

1. Correct Option: (d)

Explanation:

Seaweeds

- **The Seaweeds are** a group of photoautotrophic, **macrophytic algae, a primitive type of plants lacking true roots, stems, and leaves.**
- The word seaweed gives the wrong impression that it is a useless plant. Seaweeds are wonder plants of the sea and highly useful plants.
- **Seaweeds grow in the shallow waters. Root system and conducting tissues like land plants are absent in seaweeds.**

- Some seaweeds are microscopic, such as the phytoplankton that live suspended in the water column and provide the base for most marine food chains. Some are enormous, like the giant kelp that grows in abundant "forests" and tower-like underwater redwoods from their roots at the bottom of the sea. Most are medium-sized, come in colors of red, green, brown, and black, and randomly wash up on beaches and shorelines just about everywhere.
- **Seaweeds grow in the shallow waters.** Seaweed planted in shallow water near the surface (30 to 50 centimeters) receives plenty of sunlight and its growth will be good. Seaweed planted in deep water (more than 1 meter from the sea surface) does not get enough sunlight and its growth will be poor.
- **Seaweeds provide a new renewable source of food, energy, chemicals, and medicines. It also provides a valuable source of raw material for industries like health food, medicines, pharmaceuticals, textiles, fertilizers, animal feed etc.**
- **Seaweed is chock-full of vitamins, minerals, and fiber, and can be tasty.** For at least 1,500 years, the Japanese have enrobed a mixture of raw fish, sticky rice, and other ingredients in a seaweed called nori. The delectable result is a sushi roll. In fact, seaweeds are called medical food of the 21st century.
- Many seaweeds contain anti-inflammatory and anti-microbial agents. Their known medicinal effects have been legion for thousands of years; the ancient Romans used them to treat wounds, burns, and rashes. Anecdotal evidence also suggests that the ancient Egyptians may have used them as a treatment for breast cancer.
- Certain seaweeds do, in fact, possess powerful cancer-fighting agents that researchers hope will eventually prove effective in the treatment of malignant tumors and leukemia in people. While dietary soy was long credited for the low rate of cancer in Japan, this indicator of robust health is now attributed to dietary seaweed.
- These versatile marine plants and algae have also contributed to economic growth. Among their many uses in manufacturing, they are effective binding agents (emulsifiers) in such commercial goods as toothpaste and fruit jelly, and popular softeners (emollients) in organic cosmetics and skin-care products.
- **Seaweeds grow abundantly along the Tamil Nadu and Gujarat coasts and around Lakshadweep and Andaman**

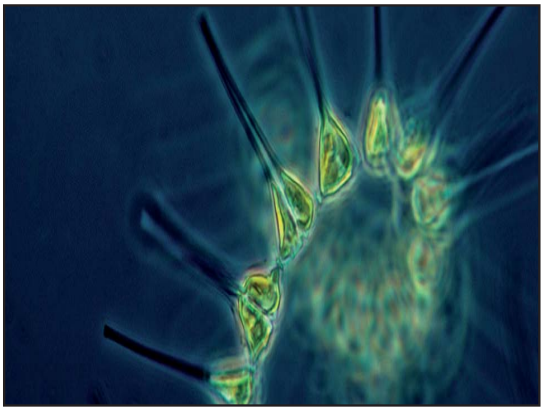
and Nicobar islands. There are also rich seaweed beds around Mumbai, Ratnagiri, Goa, Karwar, Varkala, Vizhinjam and Pulicat in Tamil Nadu and Chilka in Orissa.

2. Correct Option: (c)

Explanation:

Phytoplanktons

- Phytoplankton, also known as microalgae, are similar to terrestrial plants in that they contain chlorophyll and require sunlight in order to live and grow.
- Most phytoplankton are buoyant and float in the upper part of the ocean, where sunlight penetrates the water.
- Phytoplankton also requires inorganic nutrients such as nitrates, phosphates, and sulfur which they convert into proteins, fats, and carbohydrates.
- **The two main classes of phytoplankton are dinoflagellates and diatoms. Dinoflagellates use a whip-like tail, or flagella, to move through the water and their bodies are covered with complex shells. Diatoms also have shells, but they are made of a different substance and their structure is rigid and made of interlocking parts.** Diatoms do not rely on flagella to move through the water and instead rely on ocean currents to travel through the water.
- In a balanced ecosystem, phytoplankton provide food for a wide range of sea creatures including whales, shrimp, snails, and jellyfish. When too many nutrients are available, phytoplankton may grow out of control and form harmful algal blooms (HABs). These blooms can produce extremely toxic compounds that have harmful effects on fish, shellfish, mammals, birds, and even people.



- They are limited to the uppermost layers of the ocean where light intensity is sufficient for photosynthesis to take place. This photosynthetic rate decreases as the depth in the aquatic system increase owing to a reduction in light intensity.
- The photosynthetic rate increases with an increase in temperature but diminishes sharply after a point is reached as the protoplasmic activity cannot be maintained at temperatures above 40-degree centigrade. Thus, temperature together with illumination influences the seasonal variation of phytoplankton production more specifically on temperate latitudes. Phytoplanktons produce more than 60% of oxygen produced from all the plants.
- Phytoplankton, like land plants, require nutrients such as nitrate, phosphate, silicate, iron, and calcium at various levels depending on the species.
- **Some phytoplankton can fix nitrogen and can grow in areas where nitrate concentrations are low.**
- They also require trace amounts of iron which limits phytoplankton growth in large areas of the ocean because iron concentrations are very low.
- Other factors influencing phytoplankton growth rates include water temperature and salinity, water depth, wind, and what kinds of predators are grazing on them.

3. Correct Option: (c)

Explanation:

Coral reefs

- Coral reefs only occupy 0.1% of the area of the ocean but they support 25% of all marine species on the planet. Hundreds of millions of people rely on coral reefs for essential nutrition, livelihoods, protection from life-threatening storms and crucial economic opportunity.

Table coral (*Acropora cytherea*)

- Coral reefs are built by coral polyps as they secrete layers of calcium carbonate beneath their bodies. The corals that build reefs are known as “hard” or “reef-building” corals.

Soft corals, such as sea fans and sea whips, do not produce reefs; they are flexible organisms that sometimes resemble plants or trees.

- **Soft corals do not have stony skeletons and do not always have zooxanthellae. They can be found in both tropical seas and in cooler, darker parts of the ocean.**
- The coral polyps that build the reef survive by forming a symbiotic relationship with microscopic algae called zooxanthellae. The polyps offer the algae shelter while the zooxanthellae create energy—through photosynthesis—that the corals use as food. In a sense, the coral polyps are "farming" the algae. The waste products of the polyps also serve as food for the zooxanthellae. Corals are also predators; they extend their tentacles at night and capture tiny organisms (zooplankton, small fish, or other potential food item) that happen to be floating by with stinging cells called nematocysts. The captured prey is then moved into the polyps' mouths and digested in their stomachs.
- **Other types of animals and plants also contribute to the structure of coral reefs. Many types of algae, seaweed, sponges, sediment, and even mollusks like giant clams and oysters add to the architecture of coral reefs. When these organisms die, they also serve as foundations for new corals.**
- Stretching nearly 1,000km from the northern tip of Mexico's Yucatan Peninsula and the Caribbean coasts of Belize and Guatemala to the Bay Islands off northern Honduras, **the Mesoamerican Reef is the largest reef system in the Americas and only second in the world after the Great Barrier Reef, the largest living thing on the planet.**

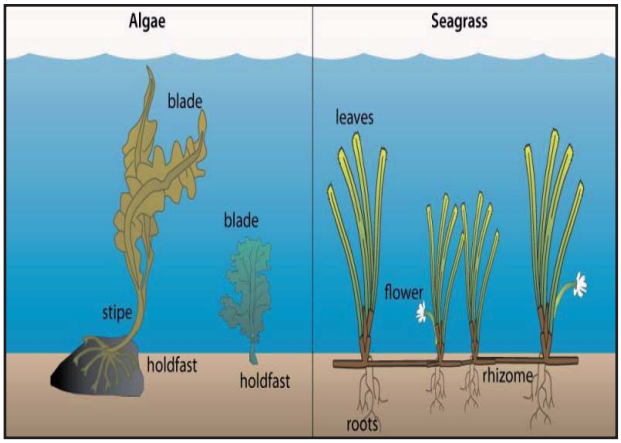
Mesoamerican Reef (Jewel of the Caribbean)

4. Correct Option: (c)

Explanation:

Seagrasses

- **Seagrasses are found in shallow salty and brackish waters in many parts of the world,** from the tropics to the Arctic Circle.
- Seagrasses are so-named because most species have long green, grass-like leaves.
- **They are often confused with seaweeds(algae), but are actually more closely related to the flowering plants that we see on land.**



Sea weeds vs Seagrasses

- **Like land plants, seagrass produce oxygen. The depth at which seagrass are found is limited by water clarity, which determines the amount of light reaching the plant. Light is required for the plants to make food through photosynthesis.**
- **Seagrasses have roots, stems and leaves, and produce flowers and seeds.** They evolved around 100 million years ago, and today there are approximately 72 different seagrass species that belong to four major groups.
- **Therefore, seagrasses are neither grasses nor seaweeds.**

Well-developed Seagrasses

- Seagrasses can form dense underwater meadows, some of which are large enough to be seen from space.
- **Although they often receive little attention, they are one of the most productive ecosystems in the world. Seagrasses provide shelter and food to an incredibly diverse community of animals, from tiny invertebrates to large fish, crabs, turtles, marine mammals and birds.**
- **Seagrasses provide many important services to people as well, but many seagrasses meadows have been lost because of human activities.**

5. Correct Option: (b)

Explanation:

Coral Triangle

- The Coral Triangle, the global center of marine biodiversity, is a 6 million km2 area spanning **Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor Leste and the Solomon Islands.**
- Within this nursery of the seas live 76% of the world's coral species, 6 of the world's 7 marine turtle species, and at least 2,228 reef fish species.

6. Correct Option: (b)

Explanation:

Loktak lake

- **Loktak lake, in Manipur**, is the largest freshwater lake in Northeast India.
- It is known for its circular floating swamps, called phumdis in the local language.

Phumdis on the Loktak lake

- The Keibul Lamjao National Park located at the southwestern part of the lake is a habitat of brow-antlered deer, Sangai, which is also the state animal of Manipur.

7. Correct Option: (c)

Explanation:

Neuston

- **The term neuston refers to the assemblage of organisms associated with the surface film of lakes, oceans, and slow-moving portions of streams. It generally includes species living just underneath the water surface (hyponeuston), individuals that are above but immersed in the water (epineuston), and taxa that travel over the surface on hydrophobic structures (superneuston or, more properly, a form of epineuston).**
- **Thus, these are unattached organisms that live at the air-water interface such as floating plants, etc.**

- The neustonic food web is primarily supported by a thin bacterial film on the upper surface of the water, a concentration of phytoplankton near the surface, and allochthonous inputs from trapped terrestrial and aquatic organisms.
- **Just like reefs on the seafloor, this ecosystem does not stand apart from the open ocean around it. The neuston is a nursery for multiple species of larval fish and a hunting ground for paper nautilus octopuses. It supports sunfish, leatherback turtles, and diverse ocean grazers, which frequent these islands, relying on them as a food source.**

8. Correct Option: (d)

Explanation:

Fjords

- Fjords (pronounced fee-YORDS) are typically long, narrow valleys with steep sides that are created by advancing glaciers.
- The glaciers leave deep channels carved into the earth with a shallow barrier, or narrow sill, near the ocean.
- When the glaciers retreat, seawater floods the deeply incised valleys, creating estuaries.

- Fjords tend to have a moderately high input of freshwater. In comparison, very little seawater flows into the fjord because of the sill.
- In addition, the sill prevents deep waters in the fjord from mixing with deep waters of the sea. This poor water exchange results in stagnant, anoxic (low oxygen) water that builds upon the bottom of the fjord.
- Not surprisingly, fjords are found in areas that were once covered with glaciers.
- Glacier Bay in Alaska and the Georgia Basin region of Puget Sound in Washington State are good examples of fjords.
- Fjords are also found throughout Canada, Chile, New Zealand, Greenland, Norway, Siberia, and Scotland.

PC: NOAAA, USA

9. Correct Option: (b)

Explanation:

New Ramsar Sites in India

- In a major recognition towards the Government of India's effort towards conservation, restoration, and rejuvenation of its wetlands, Ramsar has declared 10 more wetland sites from India as sites of international importance. The Ramsar Convention signed on February 2, 1971, is one of the oldest inter-governmental accord signed by member countries to preserve the ecological character of their wetlands of international importance.
- With this, the numbers of Ramsar sites in India are now 37 and the surface area covered by these sites is now 1,067,939 hectares.
- **Maharashtra** gets its first Ramsar site (**Nandur Madhameshwar**), **Punjab** which already had 3 Ramsar sites adds 3 more (**Keshopur-Miani, Beas Conservation Reserve, Nangal**) and **UP** with 1 Ramsar site has added 6 more (**Nawabganj, Parvati Agra, Saman, Samaspur, Sandi and Sarsai Nawar**).

10. Correct Option: (a)

Explanation:

Ramsar sites in India

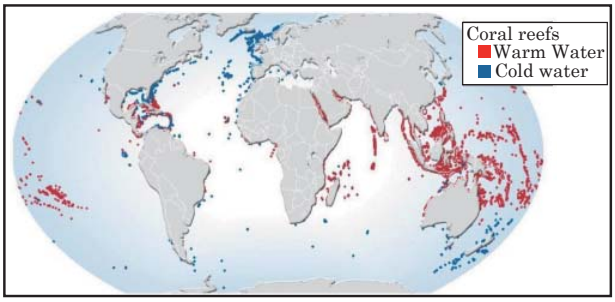
- Presently, India has 37 wetlands which have been recognized as Ramsar Sites.
- **Pong Dam Lake is in Himachal Pradesh**
- **Harike Lake is in Punjab.**
- **Loktak lake is in Manipur Park.**
- **Nalsarovar is in Gujarat.**

11. Correct Option: (c)

Explanation:

Deep-water corals

- There are both warm (tropical) corals and cold-water corals. Corals are not just warm-water creatures. They also live at depths of 40m down to 2,000m, in water temperatures as low as 4^0C.



- **In fact, more than half of coral species are found in the cold water.**
- Cold-water corals are formed under the deep and dark sea where sunlight does not reach.
- Unlike tropical corals, cold-water corals don't have symbiotic photosynthetic algae viz. **Zooxanthellae**, so **they don't need photosynthesis to survive**.
- In fact, they feed solely by **capturing food particles** from the surrounding water
- Deep-sea coral reefs are made up of only a few coral species but they provide a home for many other animals, including sea fans, sponges, worms, starfish, brittle stars, sea urchins, crustaceans, and fishes, etc.
- Example- Coral: Lophelia(Rost reef, Norway)
- Some large cold-water coral reefs are found in the far North and far South Atlantic oceans.

12. Correct Option: (c)

Explanation:

Ameenpur Lake

- "Biodiversity Heritage Sites" (BHS) are well-defined areas that are unique, ecologically fragile ecosystems - terrestrial, coastal and inland waters and, marine having rich biodiversity comprising of any one or more of the following components: richness of wild as well as domesticated

species or intra-specific categories, high endemism, presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/ cultivated species or their varieties, past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values and are important for the maintenance of cultural diversity, with or without a long history of human association with them.

Ameenpur Lake

- Under Section 37 of Biological Diversity Act, 2002 (BDA) the State Government in consultation with local bodies may notify in the official gazette, areas of biodiversity importance as Biodiversity Heritage Sites (BHS).
- **Ameenpur lake is the first water body in India that was declared as the BHS**. Further, it is the first biodiversity site to be approved in an urban area. The lake dates back to the time of Ibrahim Qutb Shah, who ruled the kingdom of Golconda between 1550 and 1580.
- Other BHS are as follows:

S. No.	Name of the Site	Name of the District	Importance of the area
1	Nallur Tamarind Grove	Bengaluru	It is popularly believed to be a relic of the Chola Dynasty that ruled nearly 800 years ago, is a spectacle of awesome wonder and a freakish site. This BHS spread over 54 acres comprising a population of nearly 300 trees, is a picture of the dynamic pattern of plant diversity. The significant component of this popular structure is a group of old plants standing like ageless sentinels, firmly rooted to the ground with their gigantic trunks, along with large picturesque crowns spread very high and aloft like open wings.
2	Hogrekan		The area has unique Shola vegetation and grassland with a number of floral species that are unique and have a lot of medicinal value. Hogrekan is moderately wooded land and its vegetation is of dry deciduous type and has a link with Bababudanagiri and Kemmangundi, adjoining Bhadra Wildlife Sanctuary and Yemmedode Tiger Reserve and serving as "Wildlife Corridor" between Kudremukha and Bhadra Wildlife Sanctuary.
3	University of Agricultural Sciences, GKVK Campus, Bengaluru	Bengaluru	The GKVK campus is considered one of the greenest areas in Bengaluru. Biological diversity of this campus constitutes a critical repository of various forms of flora and fauna (including 13 sp of mammals, 10 sp of reptiles, 165 sp of birds and 530 sp of plants) which needs to be protected nurtured to posterity.
4	Ambaraguda	Shimoga	It is a revenue land located between Sharavathi Wild Life Sanctuary and Someshwara Wildlife Sanctuary. It has Shola vegetation which is primitive vegetation in the Western Ghat and also has grasslands.
5	Glory of Allapalli	Gadchiroli	It is a reserved forest being preserved as natural forest having biological, ethical and historical values.
6	Tonglu BHS under the Darjeeling Forest Division	Darjeeling	It is a Medicinal Plant Conservation Areas

7	Dhotrey BHS under the Darjeeling Forest Division	Darjeeling	It is a Medicinal Plant Conservation Areas
8	Dialong Village	Tamenglong	---
9	**Ameenpur lake**	**Sangareddy**	---
10	Majuli	Majuli	It is an island situated in the Brahmaputra River which is harboring unique Ecological and Cultural Heritage.
11	Gharial Rehabilitation Centre	Lucknow	It is a center established for conservation and rehabilitation of critically endangered species of Gharial.
12	Chilkigarh Kanak Durga	Jhargram	Chilkigarh Kanak Durga Sacred Grove is a remnant forest with traditional beliefs and taboos of local inhabitants and rich in biodiversity covering an area of 55.9 acres in Jhargram District of West Bengal.

13. Correct Option: (d)

Explanation:

Freshwater ecosystem

- Water on land which is continuously cycling and has low salt content is known as freshwater and
- its study is called limnology.
  - ➤ Static or still water (Lentic) e.g. pond, lake, bogs, and swamps.
  - ➤ Running water (Lotic) e.g. springs, mountain brooks, streams, and rivers.

14. Correct Option: (b)

Explanation:

Dissolved Oxygen in Aquatic Ecosystems

- **In aquatic ecosystems, oxygen is dissolved in water, where its concentration varies constantly depending on factors that influence the input and output of oxygen in the water.**
- In freshwater, the average concentration of dissolved oxygen is 0.0010 percent (also expressed as 10 parts per million or 10 ppm) by weight, which is 150 times lower than the concentration of oxygen in an equivalent volume of air.
- **Oxygen enters the aquatic ecosystem through the air-water interface and by the photosynthetic activities of aquatic plants.**
- Therefore, the quantity of dissolved oxygen present in an ecosystem depends on the rate at which the aforesaid two processes occur.
- Dissolved oxygen escapes the water body through the air-water interface and through respiration of organisms (fish, decomposers, zooplanktons, etc).
- **The amount of dissolved oxygen retained in water is also influenced by temperature.** Oxygen is less soluble in warm water. Warm water also enhances decomposer activity. Therefore, increasing the temperature of a water body increases the rate at which oxygen is depleted from water.
- When the dissolved oxygen level falls below 3-5 ppm, many aquatic organisms are likely to die.

15. Correct Option: (b)

Explanation:

Neuston

- **These are unattached organisms that live at the air-water interface such as floating plants, etc.**
- Some organisms spend most of their lives on top of the air-water interface such as water striders, while others spend most of their time just beneath the air-water interface and **obtain most of their food within the water. E.g., beetles and back-swimmers**.

16. Correct Option: (a)

Explanation:

- **Photic zone**
  - Photic (or "euphotic") zone is the portion that extends from the lake surface down to where the light level is 1% of that at the surface. **The depth of this zone depends on the transparency of water.**
  - **Photosynthetic activity is confined to the photic zone**.
  - Both photosynthesis and respiration activity takes place.
- **Aphotic zone**
  - The lower layers of the aquatic ecosystems, where light penetration and plant growth are restricted form the aphotic zone (profundal zone).
  - Only respiration activity takes place in this zone. The aphotic zone extends from the end of the photic zones to bottom of the lake

17. Correct Option: (a)

Explanation:

Aquatic Ecosystem

- The foremost implication of the addition of fertilizers to the aquatic ecosystems is eutrophication which in turn leads to increased growth of Phytoplanktons and other algae matter.
- When these dense algal blooms eventually die, microbial decomposition severely depletes dissolved oxygen, creating a hypoxic or anoxic 'dead zone' lacking sufficient oxygen to support most organisms.

18. Correct Option: (c)

Explanation:

Red Tide

- "Red Tide" is a common name for such a phenomenon where certain phytoplankton species contain pigments and "bloom" such that the human eye perceives the water to be discolored.
- Blooms can appear greenish, brown, and even reddish-orange depending upon the type of organism, the type of water, and the concentration of the organisms.
- The term "red tide" is thus a misnomer because blooms are not always red, they are not associated with tides, they are usually not harmful, and some species can be harmful or dangerous at low cell concentrations that do not discolor the water.
- They are scientifically referred to as Harmful Algal Blooms (HABs).

19. Correct Option: (d)

Explanation:

Removal of the nutrients from a lake

- Deepwater abstractions
- Flushing with nutrient-poor waters
- On-site algae removal by filters and P-adsorbers
- On-site algae skimming and separator thickening
- Artificial mixing / Destratification (permanent or intermittent)
- Harvest of fishes and macrophytes
- Sludge removal

20. Correct Option: (c)

Explanation:

Classification of Lakes

- Lakes are also classified on the basis of their water chemistry. Based on the levels of salinity, they are known as Freshwater, Brackish or Saline lakes (similar to that of classification of an aquatic ecosystem).
- **On the basis of their nutrient content, they are categorized as Oligotrophic (very low nutrients), Mesotrophic (moderate nutrients) and Eutrophic (highly nutrient-rich).**
- The vast majority of lakes in India are either eutrophic or mesotrophic because of the nutrients derived from their surroundings or organic wastes entering them.

21. Correct option: (c)

Explanation

- Both the statements are correct

Supplementary notes

World Malaria Report 2019

- Despite a dip in cases, India still one of the worst-hit countries
- While Africa and India saw the maximum dip in malaria cases between 2017 and 2018, they still accounted for 85 per cent deaths.

- The World malaria report 2019 provides a comprehensive update on global and regional malaria data and trends.
- The report tracks investments in malaria programmes and research as well as progress across all intervention areas: prevention, diagnosis, treatment, elimination and surveillance.
- It also includes dedicated chapters on the consequences of malaria on maternal, infant and child health, the "High Burden to High Impact" approach as well as biological threats to the fight against malaria.
- The 2019 report is based on information received from more than 80 countries and areas with ongoing malaria transmission.
- Nineteen countries in sub-Saharan Africa and India accounted for 85 per cent of the global malaria burden in 2018. Globally 228 million malaria cases were reported in 2018, which is marginally lower than the number of cases in 2017 (231 million), as per the World Malaria Report 2019 released by the World Health Organization.
- India registered a fall of 2.6 million malarial cases in 2018 as compared to previous year. The country also has one of the lowest funding per person at risk of being inflicted with malaria at just US$0.2.
- Despite being the highest burden country in the South-East Asia region, India showed a reduction in reported cases of 51 per cent compared to 2017 and of 60 per cent compared to 2016.
- Although cases continue to decrease in the public sector, estimates indicate that there are still gaps in reporting from the private sector and those seeking treatment in India, as in Myanmar and Indonesia. The estimated burden of malaria, the WHO report says is 6.7 million while only 4 million cases were reported in 2018.
- India, Indonesia and Myanmar accounted for 58 per cent, 21 per cent and 12 per cent of the total reported deaths in the region, respectively.

22. Correct answer: (d)

Explanation

Heavy Metals Contaminating India's Rivers

- According to the Report, samples taken from two-thirds of water quality stations on major rivers revealed the presence of a heavy metal (or in some cases more than one) beyond limits specified by the Bureau of Indian Standards.
- The Central Water Commission (CWC) has collected a total of 442 surface water samples, of which 287 were found to be polluted by heavy metals.
- The exercise was limited to surface water and did not cover groundwater contamination.
- The most common heavy metal found was iron, and above safe limits in 156 samples.
- Lead, nickel, chromium, cadmium and copper were the other metals.
- The CWC study covered 67 rivers in 20 river basins, and across three seasons.
- According to the report, Arsenic and zinc are the two toxic metals whose concentration was always obtained within the limits throughout the study period.
- For other metals, contamination levels changes with the season.
- For instance, iron contamination was persistent through most of the Ganga during monsoon but dipped significantly during the non-monsoon periods.

23. Correct Answer: (a)

Explanation:

- **2nd statement is incorrect: International Financial Services Centres Authority bill was passed in 2019 by Parliament and the Authority is yet to be set up.**

Supplementary Notes

- International Financial Services Centres Authority Bill, 2019 was introduced in Lok Sabha by Union Finance Minister.
- The Bill provides for the establishment of an Authority **to develop and regulate the financial services market in the International Financial Services Centres in India**.
- **Key features of the Bill include**:
  - ➤ It will apply to all International Financial Services Centres (IFSCs) set up under the Special Economic Zones Act, 2005.
  - ➤ It sets up the **International Financial Services Centres Authority (IFFSCA)**
  - ➤ **Composition:**
    - IFFSCA will consist of **nine members**, appointed by the central government.
    - Members of the Authority will include: (i) the Chairperson, (ii) one

member each to be nominated from the Reserve Bank of India (RBI), the Securities and Exchange Board of India (SEBI), the Insurance Regulatory and Development Authority of India (IRDAI), and the Pension Fund Regulatory and Development Authority (PFRDA), (iii) two members from among officials of the Ministry of Finance, and (iv) two members to be appointed on the recommendation of a Search Committee.

- Members will have a term of **three years**, subject to reappointment.

- **Functions of the Authority:**
  - To regulate financial products (such as securities, deposits or contracts of insurance), financial services, and financial institutions which have been previously approved by any appropriate regulator (such as RBI or SEBI), in an IFSC.
  - It will follow all processes which are applicable to such financial products, financial services, and financial institutions under their respective laws.
  - The appropriate regulators are listed in a Schedule to the Bill and include the RBI, SEBI, IRDAI, and PFRDA. The central government may amend this schedule through a notification.
  - Regulating any other financial products, financial services, or financial institutions in an IFSC, which may be notified by the central government, and recommending any other financial products, financial services, or financial institutions to the central government, which may be permitted in an IFSC.
- The Bill sets up the **International Financial Services Centres Authority Fund.** The following items will be credited to the Fund: (i) all grants, fees and charges received by the Authority, and (ii) all sums received by the Authority from various sources, as decided by the central government. The Fund will be used for: (i) salaries, allowances and other remuneration of members and employees of the Authority, and (ii) expenses incurred by the Authority. Further, the central government may provide grants to the Authority for the regulation of IFSCs.
- The IFFSCA will constitute a **Performance Review Committee** to review its functioning. The Review Committee will consist of at least two members of the Authority. It will review whether: (i) the Authority has adhered to the provisions of the applicable laws while exercising powers or performing functions, (ii) the regulations made by the Authority promote transparency and best practices of governance, and (iii) the Authority is managing risks to its functioning in a reasonable manner. The Committee must submit a report of its findings to the Authority at least once every year.
- As per the Bill, all transactions of financial services in IFSCs will be in such foreign currency as specified by the Authority, in consultation with the central government.

24. Correct Answer: (a)

Explanation: Option (a) is correct.

Supplementary Notes

- The union government has called upon the Supreme Court to form a seven judge Bench to reconsider the formulation in **M. Nagaraj vs Union of India (2006)** that creamy layer should be applied to the SC and ST communities.
- The Supreme Court in **M. Nagaraj v. Union Of India 2006** case while upholding the constitutional validity of Art 16(4A) held that any such reservation policy in order to be constitutionally valid shall satisfy the following three constitutional requirements:
  - The SC and ST community should be socially and educationally backward.
  - The SC and ST communities are not adequately represented in Public employment.
  - Such reservation policy shall not affect the overall efficiency in the administration.
- In **Jarnail Singh vs Lachhmi Narain Gupta case of 2018**, Supreme Court holds that reservation in promotions does not require the state to collect quantifiable data on the backwardness of the Scheduled Castes and the Scheduled Tribes.
- The Court held that creamy layer exclusion extends to SC/STs and, hence the State cannot grant reservations in promotion to SC/ST individuals who belong to the creamy layer of their community.
- In May 2019 the Supreme Court upheld the Karnataka law that allows reservations in promotions for SCs and STs with consequential seniority.

- **Centre's Arguments against the Extension of Creamy layer concept to SC and ST**
- While the Centre has accepted that the 'creamy layer' norm is needed to ensure that

Constitutional Provisions Governing Reservation in India

- **Part XVI** deals with reservation of SC and ST in Central and State legislatures.
- **Article 15(4) and 16(4)** of the Constitution enabled the State and Central Governments to reserve seats in government services for the members of the SC and ST.
- The Constitution was amended by the Constitution **(77th Amendment) Act, 1995** and a new clause **(4A) was inserted in Article 16** to enable the government to provide reservation in promotion.
- Later, **clause (4A) was modified by the Constitution (85th Amendment) Act, 2001** to provide consequential seniority to SC and ST candidates promoted by giving reservation.
- Constitutional **81st Amendment Act, 2000 inserted Article 16 (4 B)** which enables the state to fill the unfilled vacancies of a year which are reserved for SCs/STs in the succeeding year, thereby nullifying the ceiling of fifty percent reservation on total number of vacancies of that year.
- **Article 330 and 332** provides for specific representation through reservation of seats for SCs and STs in the Parliament and in the State Legislative Assemblies respectively.
- **Article 243D** provides reservation of seats for SCs and STs in every Panchayat.
- **Article 233T** provides reservation of seats for SCs and STs in every Municipality.
- **Article 335** of the constitution says that the claims of STs and STs shall be taken into consideration constituently with the maintenance of efficacy of the administration.

- only those genuinely backward get reservation benefits, it is justifiably upset that this principle has been extended to Dalits, who have been acknowledged to be the most backward among the backward sections.
- Another problem is the question whether the exclusion of the advanced sections among SC/ST candidates can be disallowed only for promotions. Most of them may not fall under the 'creamy layer' category at the entry level, but after some years of service and promotions, they may reach an income level at which they fall under the 'creamy layer'. This may result in the defeat of the object of the Constitution amendments that the court itself had upheld to protect reservation in promotions as well as consequential seniority. Another landmark verdict in the history of affirmative action jurisprudence may be needed to settle these questions.

25. Correct Answer: (c)

Explanation:

- **3rd statement is incorrect. HDI was created by Pakistani Economist Mahbub ul Haq.**

Supplementary Notes

- Recently, Human Development Report 2019 says that India is home to 28% of world's poor.
- The annual HDI 2019 report, ranked India at the 129th position, one rank above last year's ranking, out of a total 189 countries.
- India remains the home to 28 percent of global poor. About 41 per cent of the world's poor live in South Asia.
- Between 1990 and 2018, India's HDI value increased by 50 per cent (from 0.431 to 0.647), which places it above the average for countries in the medium human development group (0.634) and above the average for other South Asian countries (0.642).
- This means that in the last three decades, life expectancy at birth in India increased by 11.6 years, whereas the average number of schooling years increased by 3.5 years. Per capita incomes increased 250 times.
- The report finds that despite progress, group-based inequalities persist on the Indian subcontinent, especially affecting women and girls.
- While Singapore has the region's lowest incidence of intimate partner violence against women, the report states that a staggering 31 per cent of women in South Asia have experienced intimate partner violence.

- India is only marginally better than the South Asian average on the Gender Development Index (0.829 vs 0.828), and ranks at a low 122 (of 162) countries on the 2018 Gender Inequality Index.
- The report states that as the number of people coming out of poverty is increasing, the world is veering towards another type of poverty. The old inequalities were based on access to health services and education whereas the next generation of poverty is based on technology, education and climate, according to the report.
- The report ranked countries after analysing reduction in absolute poverty, gains in life expectancy, education, and access to health care.
- India has both types of poverty. Even as Indians continue to face a lack of access to healthcare and education, many others are becoming poor based on the new criteria.

What is HDI?

- The underlying principle of the HDI, considered path breaking in 1990, (created by Pakistani economist Mahbub ul Haq) is elegantly simple: National development should be measured not only by income per capita, but also by health and education achievements.
- The HDI is the composite measure of every country's attainment in three basic dimensions:
  - ➤ Standard of living measured by the gross national income (GNI) per capita.
  - ➤ Health measured by the life expectancy at birth.
  - ➤ Education levels calculated by mean years of education among the adult population and the expected years of schooling for children.
- This index makes it possible to follow changes in development levels over time and to compare the development levels of different countries.
- Additional indices have been developed to capture other dimensions of human development to identify groups falling behind in human progress and to monitor the distribution of human development.
- In 2010 three indices were launched to monitor poverty, inequality and gender empowerment across multiple human development dimensions
  - ➤ The Multidimensional Poverty Index (MPI),
  - ➤ The Inequality-adjusted Human Development Index (IHDI)
  - ➤ The Gender Inequality Index (GII).

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TEST

DAY - 34

Time Allowed: 30 mins **Maximum Marks: 50**

1. Consider the following statements with reference to the level of biodiversity:

1. Ecological diversity refers to the variety of organisms within an ecosystem.
2. Species diversity ensures that the species can survive drastic changes in the environmental conditions.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

2. Which of the following action is *not* a threat to the biodiversity of a region?

(a) Introduction of a species in a new ecosystem.
(b) Practicing Jhum cultivation.
(c) Reintroduction of a lost species in its original ecosystem.
(d) A large but unmanaged ecosystem is fragmented into smaller ones.

3. Which of the following are the methods of ex-situ conservation of biodiversity?

1. Seed Banks
2. Cryopreservation
3. Sacred groves
4. Tissue culture propagation

Select the correct option using the codes given below:

(a) 3 and 4 only
(b) 1 and 3 only
(c) 1, 2, and 4 only
(d) 1, 2, 3 and 4

4. Consider the following statements regarding the measurement of biodiversity:

1. Species richness measures the proportion of species at a given site.
2. Species evenness measures the number of species found in a community

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

5. Consider the following list:

1. Predictable environment
2. The complex relationship amongst species
3. Niche similarity amongst species
4. More insolation

Which of the above is/are the reason(s) to enhance the biodiversity of the Earth?

(a) 2 and 3 only
(b) 1, 2 and 4 only
(c) 2 only
(d) 1 and 4 only

6. Meghalaya is popular for the living root bridge. The roots of which of the following trees is used for this?

(a) Banayan trees
(b) Rubber trees
(c) Bamboo grass
(d) Mahogany trees

7. Consider the following statements regarding the mangrove forests:

1. They live in the intertidal zone.
2. They cannot withstand freezing temperatures.
3. Approx. one-fourth of the total mangroves in India are in Gujarat.

Which of the above statements is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 only

(d) 1, 2, and 3

8. Which of the following is the species of the Asian elephant?

(a) Elephas maximus

(b) Loxodonta cyclotis

(c) Loxodonta africana

(d) All of the above

9. A new fossil record has shown that India is the birthplace of Asian bamboo. In which of the following states, the fossils have been found?

(a) Mizoram

(b) Manipur

(c) Arunachal Pradesh

(d) Assam

10. Which of the following is correct regarding 'Red Vanda'?

1. It is included in the Schedule-VI of the Wildlife Protection Act, 1972
2. It is found in Sikkim.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

11. Which of the following plants are alien invasive species in India?

1. Blue Vanda
2. Touch-Me-Not
3. Datura
4. Madar
5. Red sanders

Select the correct option using the codes given below:

(a) 1, 3, and 4 only

(b) 2, 3, and 4 only

(c) 1 and 5 only

(d) 1,2,3, and 4 only

12. Consider the following statements regarding a plant species of India:

1. It is the largest genus of carnivorous plants.
2. It is of high medicinal values.
3. It inhabits freshwater wetlands and waterlogged areas.

Which of the following species has been described above?

(a) Utricularia

(b) Sarpagandha

(c) Ladies Slipper Orchid

(d) Aldrovanda

13. Which of the following correctly represents Genetic Diversity?

(a) It is concerned with the variation in genes within a particular species.

(b) It is the variety of living organisms on earth.

(c) This refers to the different types of habitats occupied by various organisms.

(d) It is the variation of the ecological relations that a living organism has with non-living objects such as trees.

14. What do you understand by Community/ Ecosystem diversity?

(a) It is a variety of different types of habitats in an area.

(b) It is the diversity of living creatures found in a food chain.

(c) It defines the different natural services provided by plants for human beings.

(d) It is the diversity of a scientifically planned collection of living trees, shrubs etc. from various parts of the world.

15. Which of the following mentioned is *not* a Biogeographic province in India?

(a) Assam Plains

(b) Tibetan Plateau

(c) Central highlands

(d) Lower Gangetic Plains

16. Identify the Non-flowering plant group from the following:

1. Bryophytes
2. Gymnosperms
3. Angiosperms

Select the correct option from the codes given below:

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

17. Which among the following regions of India has the highest floral endemism?

(a) Eastern Himalaya and north-eastern region

(b) North-western Himalaya

(c) Andaman & Nicobar Islands

(d) Western and Eastern Ghats

18. Identify the *incorrect* statement with respect to Insectivorous Plants:

(a) These are plants that are specialized in trapping insects.

(b) Brilliant colors, sweet secretions are few attractions used by these plants to lure their victims.

(c) Some of them even prey upon large animals as well.

(d) Leaf traps and Pitfall mechanisms are associated with Insectivorous plants.

19. Pitcher Plant is a member of which plant family?

(a) Nepenthes

(b) Asteraceae

(c) Rosaceae

(d) None of the above

20. Identify the Artificial cause of extinction of species from the following:

(a) Climate change

(b) Tectonic activity

(c) Introduction of invasive species

(d) Increased volcanic activity

21. With reference to Citizenship Amendment Bill, 2019, consider the following statements

1. Bill seeks to grant citizenship to non-Muslim refugees from Pakistan, Bangladesh and Afghanistan only.
2. The Act amends the Citizenship Act, 1955.
3. The Act also amends the provisions on registration of Overseas Citizens of India (OCI).

Which of the following statement is/are correct?

(a) 1 and 2only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

22. Consider the following statements about Anglo-Indians

1. Article 334 of the Constitution Provides for nomination of two Anglo-Indians to Lok Sabha before amendment.
2. Parliament has passed the Constitution (126th Amendment) Bill that extends reservation for SC/STs but has done away with the provision for nomination of Anglo Indians to Lok Sabha and some state Assemblies.

Which of the above statement(s) is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) None

23. What are the major problems that have crippled the growth in real estates industry?

1. Approvals and Procedural difficulties
2. Lack of clear land titles

3. Poor lending by Banks
4. Real estates industry is not organized

Choose the correct option

(a) 1, 2 and 3
(b) 1 and 2
(c) 1 and 3
(d) 1, 2, 3 and 4

24. Recently, IUCN released a report on Ocean deoxygenation. Which of the following statements is correct regarding the process of ocean deoxygenation?

1. Warm ocean waters hold less oxygen and become more buoyant.
2. Nutrient pollution causes excessive growth of algae.
3. Deoxygenation favours low-oxygen sensitive marine species.

Choose the correct answer:

(a) Only 1
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

25. Many cyclonic instances were in news recently. Match each of the following cyclones with their correct place of origin.

1. Cyclone Vayu – Indian Ocean
2. Cyclone Pawan – Gulf of Aden
3. Cyclone Idai – Pacific Ocean

Choose the correct answer:

(a) Only 1
(b) 1 and 2 only
(c) Only 3
(d) 1, 2 and 3

****

ANSWER HINTS

DAY - 34

1. Correct Option: (d)

Explanation:

Levels of biodiversity

- There are three levels of biodiversity in a region viz. Genetic Diversity, Species Diversity, and Ecological Diversity.
- **Genetic Diversity is the diversity at the genetic level, for instance, different strains of the same gene. Genetic diversity allows species to adapt to changing environments. This diversity aims to ensure that some species survive drastic changes and thus carry on desirable genes.** The genetic diversity gives us beautiful butterflies, roses, parakeets or coral in myriad hues, shapes, and sizes.
- Species diversity of an ecosystem refers to the number of types of species within an ecosystem. It refers to the variety of living organisms on earth. It is the ratio of one species population over a total number of organisms across all species in the given biome.
- **Ecological diversity refers to the variety of organisms between two or more ecosystems.** For instance, western Ghats are more ecologically diverse than the Eastern Ghats. As the environment changes, species best adapted to that environment becomes predominant. Thus the variety or diversity of species in the ecosystem is influenced by the nature of the ecosystem.

2. Correct Option: (c)

Explanation:

Threats to the biodiversity

- According to the Convention on Biological Diversity, there are six major threats to the biodiversity of an ecosystem viz. Habitat loss and Fragmentation, Over-exploitation of resources, Alien species invasions, Nutrient loading, Climate change, and environmental pollution.
- **Reintroduction of a lost species in its original ecosystem would *not* cause any threat.**

3. Correct Option: (c)

Explanation:

Modes of Conservation:

- **Ex-situ conservation:** Conserving biodiversity outside the areas where they naturally occur is known as ex-situ conservation. **Example- Seed banks, zoological botanical, horticultural and recreational gardens, reintroduction to a habitat, Cryopreservation, Tissue culture propagation, and In-vitro fertilization, etc.**
- **In-situ conservation**: Conserving the animals and plants in their natural habitats is known as in-situ conservation. Example- National parks, Sanctuaries, Biosphere reserves, Reserved forests, Protected forests, sacred groves, etc.

4. Correct Option: (d)

Explanation:

Measurement of biodiversity

- Diversity mainly includes two different aspects: species richness and evenness.
- **Species richness is the number of species**. It is the simplest measure of diversity and does not consider differences in species relative abundance.
- **Species evenness is the similarity in species relative abundance** in a community captures another aspect of diversity by determining diversity as a standardized index of relative species abundance.

- The relationship between species richness and evenness can vary with change in key ecological processes such as competition, predation, and succession, each of which can alter proportional diversity through changes in evenness without any change in species composition

5. Correct Option: (b)

Explanation:

Biodiversity

- Some important reasons that influence the pattern of Biodiversity are as follows:
  - Speciation which is needed for species diversification
  - **A relatively more constant and predictable environment** that promotes niche specialization and lead to greater species diversity.
  - **More insolation contributes to higher productivity, i**n turn, contribute indirectly to greater diversity.
  - The more complex ecosystem provides more food web i.e. many entry points for any organism. This, in turn, sustains the greater biodiversity.
  - **Nich similarity is not good, promotes high competition and leads to loss of biodiversity.**

6. Correct Option: (b)

Explanation:

Living root bridges

- Living root bridges are a form of tree shaping common in the southern part of the Northeast Indian state of Meghalaya.
- The southern Khasi and Jaintia hills are humid and warm, crisscrossed by swift-flowing rivers and mountain streams.
- On the slopes of these hills, a species of Indian rubber tree(***Ficus elastica***) with an incredibly strong root system thrives and flourishes.
- The bridges are handmade from the aerial roots of Rubber Trees by the Khasi and Jaintia peoples of the mountainous terrain along the southern part of the Shillong Plateau.

- It can take 15 to 20 years for the surreal, strong web of tangled root bridges to connect the two banks. Unlike traditional constructions, Meghalaya's root bridges only grow stronger with time, never requiring major maintenance or rebuilding; the strongest root bridges are more than 100 years old.

7. Correct Option: (d)

Explanation:

Mangrove forests

- Mangroves are a group of trees and shrubs that live in the coastal intertidal zone.
- Mangrove forests only grow at tropical and subtropical latitudes near the equator because they cannot withstand freezing temperatures.
- Many mangrove forests can be recognized by their dense tangle of prop roots that make the trees appear to be standing on stilts above the water. This tangle of roots allows the trees to handle the daily rise and fall of tides, which means that most mangroves get flooded at least twice per day. The roots also slow the movement of tidal waters, causing sediments to settle out of the water and build up the muddy bottom.
- Mangrove forests stabilize the coastline, reducing erosion from storm surges, currents, waves, and tides. The intricate root system of mangroves also makes these forests attractive to fish and other organisms seeking food and shelter from predators.
- The total mangrove cover in the country is 4,975 sq km.
- An increase of 54 sq Km in mangrove cover has been observed as compared to the previous assessment of 2017. The top three states showing mangrove cover increase are Gujarat (37 sq km) followed by Maharashtra (16 sq km) and Odisha (8 sq km).

- According to the FSI report, West Bengal has 42.45% of the country's mangrove cover, while **Gujarat has 23.66%.**

8. Correct Option: (a)

Explanation:

Asian elephant

- The elephant is Earth's largest land animal.
- **Three species of elephants are recognized; the African bush elephant (*Loxodonta africana*) and forest elephant (*Loxodonta cyclotis*) of sub-Saharan Africa, and the Asian elephant (*Elephas maximus*) of South and Southeast Asia.**
- Asian elephants can be identified by their smaller, rounded ears. (An African elephant's ears resemble the continent of Africa.). They live in forested regions of India and throughout Southeast Asia, including Myanmar, Thailand, Cambodia, and Laos.
- The Indian elephant(***Elephas maximus indicus***) is a subspecies of the Asian elephant.

- The Asian elephant is classified as Endangered by the International Union for the Conservation of Nature (IUCN).

9. Correct Option: (d)

Explanation:

Asia's oldest bamboo

- With over 49,000 plant species reported as of 2018, India holds about 11.5% of all flora in the world. Now, a new fossil record has shown that India is the birthplace of Asian bamboo, and they were formed about 25 million years ago in the north-eastern part of the country.

- They were named *Bambusiculmus tirapensis* and *B. makumensis* - as they were found in the Tirap mine of Makum Coalfield in **Assam**. These belonged to the late Oligocene period of about 25 million years ago.

10. Correct Option: (a)

Explanation:

Red Vanda

- Red vanda is a type of Indian orchid species.
- **It is included in the Schedule-VI of the Wildlife Protection Act, 1972,** whose cultivation, Collection, extraction, trade, etc are prohibited.
- **It is found in Manipur, Assam, Andhra Pradesh**.

Touch-me-not

Datura

Madar

11. Correct Option: (b)

Explanation:

Alien Invasive species in India

- An alien plant also referred to as exotic, introduced, foreign, non-indigenous or non-native, is one that has been introduced by humans intentionally or otherwise through human agency or accidentally from one region to another. An alien plant that has escaped from its original ecosystem and is reproducing on its own in the regional flora is considered a naturalized species. Those naturalized aliens that become so successful as to spread in the flora and displace native biota or threatens valued environmental, agricultural or personal resources by the damage it causes are considered invasive.
- These species threaten native plants and animals or other aspects of biodiversity.
- They occur in all groups of plants and animals, as competitors, predators, pathogens and parasites, and they have invaded almost every type of native ecosystem.
- The effects on biodiversity are enormous and often irreversible.
- **Some of the plant species are Goat weed(from America), Touch-Me-Not(from Brazil), Datura(from America), Madar(from Africa), Water Hyacinth(from America), Prosopis juliflora (from Mexico) 4 '0' clock plant(Peru), etc.**
- **Red Sanders (or Red Sandalwood) is an Indian species,** found in South India.

Red Sanders

- **Blue vanda or autumn lady's tresses, is a native species of orchid found in Assam and neighboring Khasi hills** with its range extending to China.

Blue vanda

12. Correct Option: (a)

Explanation:

Utricularia/ Bladderworts

- Bladderworts generally inhabit freshwater wetlands and waterlogged areas. Some species are associated with moist moss-covered rock surfaces and damp soils during rains.
- Utricularia in its bladders mouth has sensitive bristles or hairs. When an insect happens to contact these hairs the door opens, carrying the insect into the bladder along with a little current of water. The door is shut when water fills the bladder, The enzymes produced by the inner wall of the bladder digest the insect.
- Utricularia is useful against cough, for dressing of wounds, as a remedy for urinary disease.

13. Correct Option: (a)

Explanation:

Genetic Diversity

- **Genetic diversity is concerned with the variation in genes within a particular species.**
- Genetic diversity allows species to adapt to changing environments.
- It aims to ensure that some species survive drastic changes and thus carry on desirable genes.
- The survival of individuals ensures the survival of the population.
- The genetic diversity gives us beautiful butterflies, roses, parakeets or coral in myriad hues, shapes, and sizes.

14. Correct Option: (a)

Explanation:

Ecosystem diversity

- **Community/Ecosystem diversity is the variety of different types of habitats in an area.**
- A habitat is the cumulative factor of the climate, vegetation, and geography of a region.
- There are several kinds of habitats around the world. Corals, grasslands, wetland, desert, mangrove, and tropical rain forests are examples of ecosystems.
- Change in climatic conditions is accompanied by a change in vegetation as well. Each species adapts itself to a particular kind of environment.

- As the environment changes, species best adapted to that environment becomes predominant. Thus the variety or diversity of species in the ecosystem is influenced by the nature of the ecosystem.

15. Correct Option: (a)

Explanation:

Biogeographic Provinces of India

S.No.	Biogeographic Zones	Biogeographic Provinces
1	Trans Himalaya	Ladakh mountain Tibetan Plateau Sikkim
2	The Himalaya	North West Himalaya West Himalaya Central-Himalaya East-Himalaya
3	Indian Desert	Thar Katchchh
4	Semi Arid	Punjab Plains Gujarat Rajputana
5	Western Ghats	Malabar Plains Western Ghat mountains
6	Deccan Peninsula	Central Highlands Chotta Nagpur Eastern Highlands Central Plateau Deccan South
7	Gangetic Plain	Upper Gangetic Plains Lower Gangetic Plains
8	Coast	West Coast East Coast Lakshadweep
9	Northeast India	Brahmaputra Valley North East Hills
10	Island	Andaman Nicobar

16. Correct Option: (a)

Explanation:

Bryophytes

- These are one of the important floral groups **(non-flowering)** found in India.
- They are the second-largest group of green plants in India distributed largely in Eastern Himalaya, North-eastern India, Western Himalaya, and the Western Ghats.
- Their plant body is differentiated into a small stem and simple leaves, but true roots are absent.
- They usually grow in moist places. Prominent examples include Liverworts, mosses.
- Mosses constitute the major component of Indian bryoflora followed by liverworts and hornworts.

17. Correct Option: (d)

Explanation:

Floral Endemism in India

- Floral Endemism is the phenomenon of flower species being unique to a defined geographical area. Its measure defines the diversity of species at any location.
- In India, the sequence of floral endemism is (**in decreasing order**):
  - **Peninsular India including western and Eastern Ghats (about 2,600 species).**
  - Eastern Himalaya and north-eastern region (about 2,500 species).
  - North-western Himalaya (about 800 species).
  - Andaman & Nicobar Islands (about 250 species).

18. Correct Answer: (c)

Explanation:

Insectivorous Plants

- **These are plants that specialize in trapping insects.**
- They differ from normal plants in their mode of nutrition.
- **However, these plants never prey upon humans or large animals.**

- Insectivorous plants can broadly be divided into two categories based on their method of trapping their prey:
  - Active Plants: These can close their **leaf traps** the moment insects land on them.
  - Passive Plants: These have a **'pitfall' mechanism**, having some kind of jar or pitcher-like structure into which the insect slips and falls, to eventually be digested.
  - The insectivorous plants often have **several attractions such as brilliant colors, sweet secretions** and other curios to lure their victims.

19. Correct Answer: (a)

Explanation:

Nepenthes

- **The members of the Nepenthes family are commonly known as 'pitcher plants'** because their leaves bear jar-like structures.
- Its distribution is confined to the high rainfall hills and plateaus of the north-eastern region, at altitudes ranging from 100 - 1500 m, particularly in Garo, Khasi and Jaintia hills of Meghalaya.
- Nepenthes conform to the pitfall type of trap. A honey-like substance is secreted from glands at the entrance of the pitcher. Once the insect enters into the pitcher, it falls down because of the slipperiness.
- The inner wall, towards its lower half, bears numerous glands, which secrete a proteolytic enzyme. This enzyme digests the body of the trapped insects and nutrients are absorbed.
- Nepenthes in local medicine to treat cholera patients, the liquid inside the pitcher is useful for urinary troubles. It is also used as eye drops.

20. Correct Option: (c)

Explanation:

Artificial Extinction

- Even though species extinction is a natural process that can happen without the intervention of humans, extinctions caused by humans is now happening over and above the reasonable estimate of natural extinction rates.
- Species are threatened with extinction by the intervention of humans due to:
  - Direct causes - such as hunting, collection or capture, and persecution.
  - Indirect causes - such as habitat loss, modification, and fragmentation **and the introduction of invasive species.**

Natural Extinction

- It has been caused due to several factors:
- Continent drifting
- **Climate change**
- **Tectonic activity**
- **Increased volcanic activity**
- The late Ordovician global glaciations (439 Million years ago).
- The late Cretaceous extinction assumed to be associated with an extra-terrestrial impact.

21. Correct answer: (d)

Explanation

All the above statements are correct

Supplementary notes

- The Union Cabinet has cleared the Citizenship (Amendment) Bill that seeks to grant citizenship to non-Muslim refugees from Pakistan, Bangladesh and Afghanistan if they faced religious persecution there.
- The Act amends the Citizenship Act, 1955, in order to grant Indian nationality to Hindus, Sikhs, Buddhists, Jains, Parsis and Christians who come to India after facing religious persecution in Bangladesh, Pakistan and Afghanistan.
- The Act doesn't spell it out clearly, but the fact that it entitles Hindus, Sikhs, Buddhists, Jains, Parsis, and Christians facing religious persecution in the three nations, to seek Indian citizenship, highlights the exclusion of Muslims.
- This amendment is of the Citizenship Act, 1955 which requires the applicant to have resided in India for 11 of the previous 14 years. The amendment relaxes this requirement from 11 years to six years, for Hindus, Sikhs, Buddhists, Jains, Parsis, and Christians from the three nations.
- The Act also amends the provisions on registration of Overseas Citizens of India (OCI).
- OCI cardholders are foreigners who are persons of Indian origin.

22. Correct Answer: (b)

Explanation:

- 1st statement is incorrect: Article 331 of the Constitution Provides for nomination of two Anglo-Indians to Lok Sabha. It says: "Notwithstanding anything in Article 81, the President may, if he is of opinion that the Anglo-Indian community is not adequately represented in the House of the people, nominate not more than two members of that community to the House of the People." The 126th Amendment does away with this.

Supplementary Notes

- Recently, Parliament passed the Constitution (126th Amendment) Bill, extending reservation for SC/STs but doing away with the provision for nomination of Anglo Indians to Lok Sabha and some state Assemblies.
- **Article 331** of the Constitution Provides for nomination of two Anglo-Indians to Lok Sabha. It says: "Notwithstanding anything in Article 81, the President may, if he is of opinion that the Anglo-Indian community is not adequately represented in the House of the people, nominate not more than two members of that community to the House of the People." **The 126th Amendment does away with this.**
- The idea of such nominations is traced to **Frank Anthony,** who headed the All India Anglo-Indian Association. Article 331 was added in the Constitution following his suggestion to Jawaharlal Nehru.
- Article 333 deals with representation of the Anglo-Indian community in Legislative Assemblies. It says: "Notwithstanding anything in Article 170, the Governor of a State may, if he is of opinion that the Anglo-Indian community needs representation in the Legislative Assembly of the State and is not adequately represented therein, [nominate one member of that community to the Assembly]."
- Currently 14 Assemblies have one Anglo-Indian member each: Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand and West Bengal. The 126th Amendment does away with this as well.
- According to the 10th Schedule of the Constitution, Anglo-Indian members of Lok Sabha and state Assemblies can take the membership of any party within six months of their nomination. But, once they do so, they are bound by their party whip. The Anglo-Indian members enjoy the same powers as others, but they cannot vote in the Presidential election because they are nominated by the President.

Who are Anglo-Indians?

- The Anglo-Indian community in India traces its origins to an official policy of the British East India Company to encourage marriages of its officers with local women.
- The term Anglo-Indian first appeared in the Government of India Act, 1935.
- In the present context, Article 366(2) of the Constitution Of India states: "An Anglo-Indian means a person whose father or any of whose other male progenitors in the male line is or was of European descent but who is domiciled within the territory of India and is or was born within such territory of parents habitually resident therein and not established there for temporary purposes only…"
- According to 2011 Census there are only 296 people who identified themselves as belonging to the sect Anglo Indian. However, All India Anglo Indian Association contested the data and asserts that there are many more Anglo-Indians in the country.

23. Correct Answer: (a)

Explanation:

- 4th statement is incorrect. Real estates industry is organized in India.

Supplementary Notes

Issues faced by Real Estate Industry

- Approvals and Procedural difficulties: There are almost 50 approvals or more need to be taken for starting a real estate project and further these approvals are required form different govt. departments or authorities. This is one of the major causes of delays and high amount of corruption in real estate sector. Consequently corruption and delay cause inconvenience to customers only.
- The Real Estate (Regulation and Development) Act, 2016
- It seeks to protect home-buyers as well as help boost investments in the real estate industry.
- The Act establishes Real Estate Regulatory Authority (RERA) in each state for regulation of the real estate sector and also acts as an adjudicating body for speedy dispute redressal.

- Lack of clear land titles: The land titles are not clear because of poor record keeping and division of land in many parts till independence. The slow pace of modernization of land records is further aggravating the problem.
- Speculation in Land and Real Estate Prices: The prices of land and real estate in India have increased exponentially in last decade and causes overpricing of commercial or residential property. In recent times, the real estate is the most favorable destination for investment in India and far ahead than equity or gold. Further real estate agents or brokers buy or sell property frequently with their own investments and cause of surging prices in property.

The Real Estate (Regulation and Development) Act, 2016

- It seeks to protect home-buyers as well as help boost investments in the real estate industry.
- The Act establishes **Real Estate Regulatory Authority (RERA)** in each state for regulation of the real estate sector and also acts as an adjudicating body for speedy dispute redressal.

- Sources of Finance: Finance is the key for development of any industry. Due to poor image of Real Estate sector, banks are becoming reluctant to provide loans and making regulation tougher to avoid the bad loans. Alternate sources of finance are very costly and ultimately impact total cost of the project.
- High Input Cost: The real estate is a capital and labour intensive industry; thus rise in cost of labour and construction material due to inflation poses many problems to real estate industry. Further real estate builders many times raise a question about unfair practices in cement industry for rise of price more than 50% in quick time.
- Further government intervention of building minimum 20% affordable housing putting extra burden on developers and ultimately on the rest 80%.
- Real estate is the most famous sector for soaking the black money without any ambit.
- High taxation like stamp duty, VAT etc. and land acquisition are other major challenges faced by real estate sector.
- All the above issues can be verified by the facts that more than 30% of houses and commercial spaces are lying vacant in major cities like Mumbai or Delhi despite being so much demand in real estate sector.
- Thus to handle the above issues government of India has launched Real Estate (Regulation and Development) Bill. It seeks to regulate contracts between buyers and sellers in the real estate sector to ensure consumer protection, and standardisation of business practices. It establishes regulatory authorities at the state level to register residential real estate projects.

24. Correct Option (b)

Explanation:

- Statements 1 and 2 are correct
- Statement 3 is incorrect: Deoxygenation favours low-oxygen tolerant marine species.

Supplementary Notes

- The primary causes of deoxygenation are:
- Eutrophication (increased nutrient run-off from land and sewage pollution).
- Nitrogen deposition from burning of fossil fuels.
- Widespread impacts from ocean warming.
- Ocean oxygen loss is closely related to ocean warming and acidification caused by anthropogenic carbon dioxide emissions and biogeochemical consequences related to anthropogenic fertilization of the ocean.
- As the ocean warms, its water hold less oxygen and become more buoyant, resulting in reduced mixing of oxygen-rich water near the surface with the ocean depths, which naturally contain less oxygen.
- Nutrient pollution causes oxygen loss in coastal waters. Fertiliser, sewage, animal and aquaculture waste cause excessive growth of algae, which in turn deplete oxygen as they decompose.
- The loss of oxygen from world's ocean is increasingly threatening fish species and disrupting ecosystems.
- Deoxygenation is starting to alter the balance of marine life , favouring low-oxygen tolerant species (e.g. microbes, jellyfish and some squid) at the expense of low-oxygen sensitive ones (many marine species, including most fish).
- Some of the ocean's most productive biomes – which support one fifth of the world's wild marine fish harvest – are formed by ocean currents carrying nutrient-rich but oxygen-poor water to coasts that line the eastern edges of the world's ocean basins.

- As naturally oxygen-poor systems, these areas are particularly vulnerable to even small changes in ocean oxygen.
- Impacts here will ultimately ripple out and affect hundreds of millions of people.
- Species groups such as tuna, marlin and sharks are particularly sensitive to low oxygen because of their large size and energy demands.
- These species are starting to be driven into increasingly shallow surface layers of oxygen-rich water, making them more vulnerable to overfishing.
- Very low ocean oxygen can also affect basic processes like the cycling of elements crucial for life on Earth, such as nitrogen and phosphorous.

25. Correct Option (a)

Explanation: Statement 1 is correct

- Statements 2 and 3 are incorrect: Idai – South-West Indian Ocean; Cyclone Pawan – Arabian Sea, North Indian Oean.

Supplementary Notes

- Pawan – Arabian Sea
- Idai – South-West Indian Ocean
- Vayu – North Indian Ocean; Arabian Sea
- Fani – Bay of Bengal
- Phailin – Western Pacific Ocean
- Kyarr – North India Ocean; Arabian Sea
- Pabuk – Northwestern Pacific Ocean and Indian Ocean basin
- Hikka – Arabian Sea
- Mekunu – North Indian Ocean; affecting Oman, Socotra, Yemen
- Sagar – Gulf of Aden; Arabian Sea
- Daye – Bay of Bengal
- Luban – North India Ocean; affecting Arabian Peninsula
- Titli – Arabian Sea
- Gaja – Gulf of Thailand
- Phethai – Bay of Bengal

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TEST
DAY - 35

Time Allowed: 30 mins **Maximum Marks: 50**

1. Arrange the following states in increasing order of tiger population:

A. Madhya Pradesh

B. Karnataka

C. Uttarakhand

D. Maharashtra

Select the correct option using the codes given below:

(a) D-C-B-A

(b) B-C-A-D

(c) D-C-A-B

(d) D-B-C-A

2. In which of the following tiger reserves, the number of tigers is zero?

1. Dampa
2. Buxa
3. Palamau
4. Valmiki

Select the correct option using the codes given below:

(a) 1 and 4 only

(b) 3 and 4 only

(c) 1, 2 and 3 only

(d) 1, 2, 3 and 4

3. Which of the following statements regarding 'Bengal Florican' is/are correct?

1. It is one of the only four bustards found in India.
2. About 50% of this species are in West Bengal.
3. It is popular for its mating dance.

Select the correct option using the codes given below:

(a) 1 only

(b) 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

4. Consider the following statements regarding a species:

1. It is a species of riverine turtle native to Southeast Asia.
2. It is classified Critically Endangered by the IUCN.
3. In India, it is found in West Bengal & Odisha.
4. It nests on the ground.

Which of the following species has been described above?

(a) Olive Ridley

(b) Hawksbill

(c) Terrapin

(d) Leatherback

5. Consider the following statements regarding the Greater one-horned rhino (*Rhinoceros unicornis*):

1. It has been categorized as 'Endangered' according to the IUCN- Red Data Book.
2. It is the least populated rhino in the world.
3. Kaziranga National Park in Assam has the highest density of this species.

Which of the above statements is/are ***incorrect***?

(a) 1 only

(b) 2 only

(c) 3 only

(d) 1, 2, and 3

6. Which of the following categories does *not* fall in the 'threatened categories' as per the International Union for Conservation of Nature?

(a) Least Concern

(b) Data deficient

(c) Extinct in wild

(d) All of the above

7. Consider the following statements regarding a species:

1. It is a medium-sized, nocturnal and burrowing rodent endemic to India.
2. It is found only in the Eastern Ghats of Tamil Nadu.
3. It has been categorized as 'Critically Endangered' according to the IUCN-Red Data Book.

Which of the following species has been described?

(a) Elvira Rat

(b) Malabar Civet

(c) Namdapha Flying Squirrel

(d) Andaman shrew

8. Arrange the following states in increasing order of elephant population:

A. Kerala

B. Karnataka

C. Assam

D. Tamil Nadu

Select the correct option using codes given below:

(a) A-B-C-D

(b) D-C-A-B

(c) D-A-C-B

(d) B-D-A-C

9. Which of the following statements regarding Pygmy hog is/are correct?

1. It is the world's smallest wild pig.
2. It is endemic to Manas National Park.
3. It has been categorized as 'Endangered' according to the IUCN- Red Data Book.

Select the correct option using the codes given below:

(a) 1 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2, and 3

10. Consider the following statements regarding a species:

1. It is endemic to the largest biosphere reserve in India.
2. It is listed as endangered in IUCN red list.
3. Its other names are Wanderloo and Bruh.

Which of the following species has been described?

(a) Nilgiri Tahr

(b) Lion-tailed Macaque

(c) Malabar giant squirrel

(d) Gray langur

11. Consider the following statements regarding a species:

1. It is a nocturnal burrowing rodent that is found only in India.
2. It is categorized as "Critically Endangered" as per IUCN.
3. It is endemic to a small plateau near Pune, Maharashtra.

Which of the following species has been described?

(a) Elvira Rat

(b) Kondana Rat

(c) Namdapha Flying Squirrel

(d) Malabar Civet

12. Consider the following pairs regarding hotspots and their corresponding regions:

1. Sundaland: Andaman group of islands
2. Western Ghats: Sri Lanka
3. Indo-Burma: Nicobar group of Islands
4. Himalayas: Assam

Which of the above pairs are correctly matched?

(a) 2 and 3 only

(b) 1 and 4 only

(c) 1, 2, and 3 only

(d) 1,2, 3, and 4

13. Which among the following statements is *not* a Mitigative strategy for Man-Animal Conflict?

(a) Increasing alternate crops preys or water points

(b) Wildlife translocation

(c) Wildlife conservation education for local populations

(d) Creation of Artificial and Natural barriers (physical and biological)

14. What do you understand by high-value fish?

(a) A fish that is captured prior to completing its life cycle.

(b) A fish that is captured after the completion of its life cycle.

(c) A fish whose cost is high in the market of commercial fishing.

(d) A fish whose demand is high among consumers due to its good quality.

15. Many species like Stellar's sea cow, Passenger pigeon, etc. extinct due to:

(a) Habitat loss and fragmentation

(b) Over-exploitation

(c) Alien species invasions

(d) Co-extinction

16. Match the following:

List I	*List II*
A. Biological Extinction	1. Species, so few in number that it no longer plays its normal role in the community
B. Local Extinction	2. Continuous process of natural and low-level extinction
C. Ecological Extinction	3. Species no longer found anywhere on earth
D. Background Extinction	4. More than 65% of all species become extinct
E. Mass Extinction	5. Species no longer found in area it once inhabited

Select the correct answer using the code given below:

	A	B	C	D	E
(a)	4	5	2	1	3
(b)	3	5	1	2	4
(c)	4	2	1	5	3
(d)	2	1	5	4	3

17. Identify the *incorrect* with respect to Sarus Crane:

(a) It is the tallest flying bird in the world.

(b) IUCN has categorized it as Endangered species.

(c) It is the state bird of Uttar Pradesh.

(d) It is India's only resident breeding crane.

18. Find the correct statement related to Sumatran Rhinoceros species:

(a) It is the largest of all five Rhino species found in the world.

(b) It is categorized as Endangered species as per the IUCN Red List.

(c) It is regionally extinct in India.

(d) None of the above

19. Which of the following criteria is required for a species to be considered as 'Endangered'?

(a) Reduction in population size by 70% over the last 10 years.

(b) Population size estimated to number fewer than 10,000 mature individuals.

(c) When a species is known only to survive in cultivation, in captivity or as a naturalized population well outside the past range.

(d) None of the above

20. Which of the following national park is a part of the Vulture Safety zone in India?

(a) Sundarban National Park

(b) Jim Corbett

(c) Gir Forest National Park

(d) All of the above

21. With reference to PM – KISAN scheme, consider the following statements

1. It is a Centrally Sponsored scheme.
2. The fund is directly transferred to the bank accounts of the beneficiaries.
3. The entire responsibility of identification of beneficiary farmer families rests with the State / UT Governments.

Which of the following statement is/ are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

22. Consider the following statements regarding Ayushman Bharat Scheme

1. It is a Central Sector Scheme.
2. Benefit cover of Rs. 5 lakh per family per year.
3. The benefit cover will include pre-hospitalisation expenses only.

Which of the following statement is/ are correct?

(a) 1 and 2 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

23. Aditya mission of ISRO is about

(a) To study the outermost region of the sun, called corona.

(b) To study moon

(c) To study the Indian ocean

(d) To study the monsoon patterns

24. Avangard Hypersonic Missile System was in news recently. It is developed by which country?

(a) Russia

(b) China

(c) USA

(d) Britain

25. Consider the following statements about Budapest Convention-

1. It is also known as the Convention on Cybercrime.
2. It is the first international treaty seeking to address Internet and computer crime by harmonizing national laws.
3. It is drawn by Council of Europe and is not open for ratification to states which are not its members.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) 1 and 2 only

(d) 1,2 and 3

****

ANSWER HINTS

DAY - 35

1. Correct Option: (a)

Explanation:

Tiger Census 2018

- The Total population of Royal Bengal Tiger in India is 2967 as per the Tiger Census 2018, which is more than double of 2006.

- **Madhya Pradesh became the Tiger state of India with 526 Tigers whereas Karnataka, who was holding the Tiger State salutation since 2010 slipped to the second position with 524 Royal Bengal Tiger population and Uttrakhand is third with 442 Tigers Population. Maharashtra, Kerala, and Uttar Pradesh follow these states.**
- Statewise Tiger Population in India (Comparision chart)

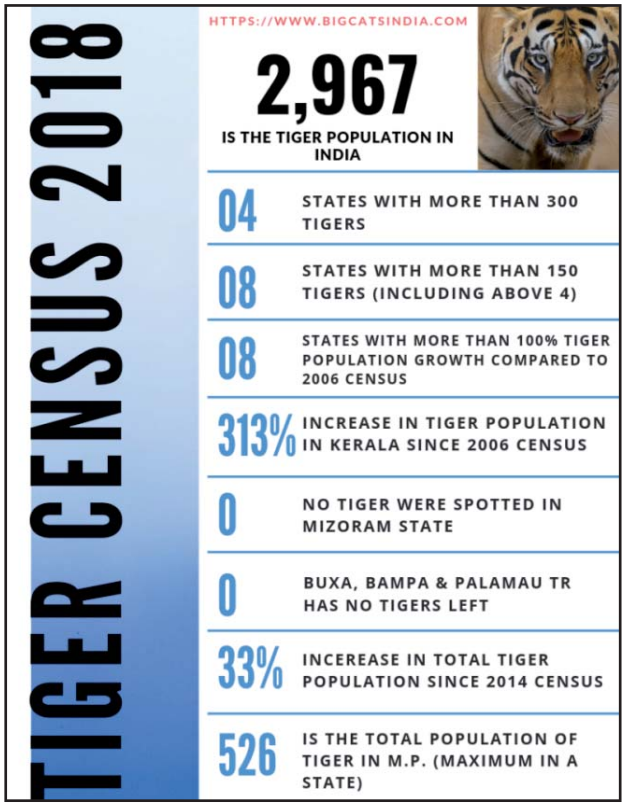
State	2014 Census	2018 Census
Bihar	28	31
Uttrakhand	340	442
Uttar Pradesh	117	173
Andhra Pradesh	68	48
Telangana	–	26
Chhattisgarh	46	19
Jharkhand	3	5
Madhya Pradesh	308	526
Maharashtra	190	312
Odisha	28	28
Rajasthan	45	69
Goa	5	3
Karnataka	406	524
Kerala	136	190
Tamil Nadu	229	264
Arunachal Pradesh	28	29
Assam	167	190
Mizoram	3	0
Nagaland	–	–
Northern WB	3	0
Sunderbans	76	88

2. Correct Option: (c)

Explanation:

Tiger Census 2018

- According to the latest census(2018), there is no tiger in wild is left in 3 tiger reserves viz. **Dampa, Palamau, and Buxa.**
- Thus, there is zero tiger is in Mizoram. In Jharkhand and Wst Bengal, few tigers are there in other tiger reserves of the states.



3. Correct Option: (c)

Explanation:

Bengal Florican (*Houbaropsis bengalensis*)

- The Bustards are an extremely endangered group of birds dependent on grassland ecosystems. Once upon a time, they used to occur in the arid, semi-arid and moist grasslands across the country. There are four species of Bustards in India Great Indian Bustard, Lesser Florican, Bengal Florican, and Houbara Bustard. They are among the most threatened of the 22 Bustards found in the world.
- The Bengal Florican (Houbaropsis bengalensis) is **Critically Endangered**, due to rapid habitat loss and hunting. It occurs patchily from India to Vietnam, **with the majority of the world's population breeding around the Tonle Sap Great Lake in Cambodia.**
- Within India, the Bengal florican survives in highly fragmented numbers in Manas National Park, Kaziranga National Park, Orang National Park, Sonai-Rupai Wildlife Sanctuary, Dibru-Saikhoa National Park and Burachapori Wildlife Sanctuary in Assam, D'Ering Wildlife Sanctuary in Arunachal Pradesh, Jaldapara and Gorumara Wildlife Sanctuary in West Bengal and Dudwa National Park in Uttar Pradesh.

- **This rare bustard species is very well known for its mating dance.** Among the tall grasslands, secretive males advertise their territories by springing from the ground and flitting to and fro in the air.

4. Correct Option: (b)

Explanation:

Northern River Terrapin (*Batagur baska*)

- India harbors 24 species of freshwater turtles and 5 species of saltwater turtles, with areas in Northeast and North India considered in the top three Turtle Biodiversity Hotspots of the world.
- **The northern river terrapin is one of Asia's largest freshwater and backwater turtles.**
- **It is a species of riverine turtle native to Southeast Asia. It is classified Critically Endangered by the IUCN. In India, it is found in West Bengal & Odisha.**
- It is strongly aquatic but uses terrestrial nesting sites, frequenting the tidal areas of estuaries, large rivers, and mangrove forests.

Northern River Terrapin (*Batagur baska*)

- **Olive Ridley** (Lepidochelys olivacea), Green (Chelonia mydas), **Hawksbill**

(Eretmochelys imbricata), **Loggerhead** (Caretta caretta) and the **Leatherback** (Dermochelys coriacea) turtles are the **sea turtles of India.**

5. Correct Option: (d)

Explanation:

Greater one-horned rhinos (*Rhinoceros unicornis*)

- The Greater one-horned rhino (or "Indian rhino") is the largest of the rhino species.
- It is commonly found in Nepal, Bhutan, Pakistan and in Assam, India. It is confined to the tall grasslands and forests in the foothills of the Himalayas.

Rhinos	Population
Javan rhino	72
Sumatran rhino	<80
Black rhino	Between 5,366 and 5,627
Greater one-horned rhino	3,588
White rhino	Between 17,212 and 18,915

- Out of an estimated 2,645 in Assam, Kaziranga has 2,413 rhinos, according to the Rhino census 2018.
- Pobitora Wildlife Sanctuary (102) shelters the highest density of Indian rhinos in the world.
- **It is listed as Vulnerable on the IUCN Red List.**
- **Javan rhinos and Sumatran rhinos are the least populated rhinos.**

6. Correct Option: (d)

Explanation:

IUCN red data book

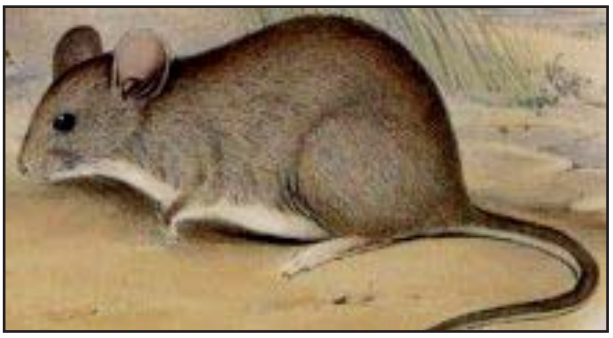
- The IUCN Red List of Threatened Species™ is the world's most comprehensive inventory of the global conservation status of plant and animal species.
- Out of nine categories, **the "threatened" is a grouping of only three categories viz. Critically Endangered, Endangered, and Vulnerable.**

7. Correct Option: (a)

Explanation:

Elvira Rat (*Cremnomys elvira)*

- It is a medium-sized, nocturnal and burrowing rodent endemic to India.
- Its habitat is the tropical dry deciduous shrubland forest, seen in rocky areas.
- It is known only from Eastern Ghats of Tamil Nadu. Recorded from an elevation of about 600 m above mean sea level.
- It has been categorized as 'Critically Endangered' according to the IUCN- Red Data Book.



8. Correct Option: (c)

Explanation:

Elephant Census

- Elephant census is conducted once in 5 years under the aegis of Project elephant.
- The estimated population of Asian Elephants in India is 29,964 as per the census conducted in 2017.
- **Among the states, the highest population has been recorded in Karnataka followed by Assam, Kerala, Tamil Nadu, Odisha, etc.**

Mammoth Count

Table List State-wise population estimates of elephants as per census conducted during 2017

State	Count	State	Count
Karnatka	6,049	Uttar Pradesh	232
Assam	5,719	Tripura	102

Kerala	5,706	Andhra Pradesh	65
Tamil Nadu	2,761	Andaman & Nicobar Islands	25
Odisha	1,976	Bihar	25
Uttrakhand	1,839	Manipur	9
Arunachal Pradesh	1,614	Mizoram	7
W.B. (North + South)	682	Madhya Pradesh	7
Jharkhand	679	Haryana	7
Nagaland	446	Himachal Pradesh	7
Chhattisgarh	247	Maharashtra	6

9. Correct Option: (b)

Explanation:

Pygmy hog (*Porcula salvania*)

- Today, the Pygmy Hog is found in just three places in Assam—**Manas, Sonai Rupai and Orang.**
- **It is the world's smallest wild pig.**
- It is one of the most useful indicators of the management status of grassland habitats.
- Pygmy hog-sucking Louse, a parasite that feeds only on Pygmy also falls in the category of endangered as its survival is linked to that of the host species.
- According to the **latest assessment** by IUCN, it has been put under the '**endangered'** category.

Porcula salvania

10. Correct Option: (b)

Explanation:

Lion-tailed Macaque

- The Lion-tailed Macaque is one of 16 Macaque species, which have an extensive home range stretching from Gibraltar to Japan. However, this particular primate is confined to tiny, isolated pockets of evergreen tropical forest in the Western Ghat Mountains in India.
- Also known as **Wanderloo and Bruh**, they are endemic to the Nilgiri Biosphere Reserve, the largest biosphere in India.
- The reasons for being **endangered** are habitat destruction and their slow reproduction cycle.

Wanderloo

11. Correct Option: (b)

Explanation:

Kondana Rat

- It is a **nocturnal burrowing rodent** that is found only in India, at the **small Sinhagarh Plateau** near Pune in Maharashtra.
- It is categorized as **"Critically Endangered"** as per IUCN.
- **It is sometimes known to build nests.**

Kondana Rat

12. Correct Option: (a)

Explanation:

Biodiversity hotspots in India

- The British biologist Norman Myers coined the term "biodiversity hotspot" in 1988 as a

biogeographic region characterized both by exceptional levels of plant endemism and by serious levels of habitat loss.

- According to the Conservation International, to qualify as a hotspot a region must meet two strict criteria: it must contain at least 1,500 species of vascular plants (> 0.5% of the world's total) as endemics, and it has to have lost at least 70% of its original habitat.
- There are currently 36 recognized biodiversity hotspots, out of which 4 are in India.
- These are as follows:
  - **Himalaya:** It includes the entire Indian Himalayan region (and that falling in Pakistan, Tibet, Nepal, Bhutan, China and Myanmar). In the North-East, it includes regions that are north of the Brahmaputra river including **Assam.**
  - **Indo-Burma:** It **i**ncludes entire North-eastern India that is south of Brahmaputra, and **Andaman group of Islands** (and Myanmar, Thailand, Vietnam, Laos, Cambodia, and southern China).
  - **Sundalands:** It includes **the Nicobar group** of **Islands** (and Indonesia, Malaysia, Singapore, Brunei, Philippines).
  - **Western Ghats:** it includes entire western ghats and **Sri Lanka.**

13. Correct Option: (d)

Explanation:

Preventive strategies for Man-Animal Conflict

- **Creation of Artificial and natural barriers (physical and biological).**
- Alternative high-cost livestock husbandry practices.
- Voluntary relocation by the human population and resettlement.

Mitigative strategies for Man-Animal Conflict

- Insurance programs for compensation of loss due to destruction caused by animals.
- Community-based natural resource management schemes (CBNRMS).
- **Increasing alternate crops preys or water points.**
- **Wildlife translocation.**
- **Wildlife conservation education for local populations.**
- Better sharing of information among the forest conservator stakeholders.

14. Correct Option: (a)

Explanation:

High-Value Fish

- **It is captured prior to completing its life cycle. Fish species of high value can be raised in fishponds at more profitable rates.**
- For example, seabass which sells at Pounds 250 and above per kilo, which costs more than milkfish and tilapia.

15. Correct Option: (b)

Explanation:

Over-exploitation

- Due to over-hunting and over-exploitation of various plants and animals by humans, many species have become endangered or extinct.
- Many species like Stellar's sea cow, Passenger pigeon, etc**.** extinct due to over-exploitation.

16. Correct Option: (b)

Explanation:

Extinction of Species

List I	List II
A. Biological Extinction	3. Species no longer found anywhere on earth
B. Local Extinction	5. Species no longer found in area it once inhabited
C. Ecological Extinction	1. Species is so few in number that it no longer plays in normal role
D. Background Extinction	2. Continuous process of natural and low-level extinction
E. Mass Extinction	4. More than 65% of all species become extinct

Extinction of Species

- **A known species has gone extinct if no member of the species is found anywhere on Earth. This is known as biological extinction and is irreversible.**
- Before a species goes biologically extinct, it goes through two other stages:
  - **Local Extinction: Species is no longer found in the area it once inhabited, though it is present elsewhere in the world.**
  - **Ecological Extinction: So few members of the species are left that it can no longer play its normal ecological role in the community.**
- **Background Extinction is a process of natural and low-level extinction that goes on continuously due to changes in the environmental conditions**; such changes may be small or big, gradual or sudden. When such changes occur, the local species must adapt itself, move to a more favorable area or become extinct.
- The background extinction has always been happening and biologists say that 99.9% of all species that ever lived are extinct.
- The rate of background extinction has been generally uniform over long geological periods. At some points in time, however, mass extinctions have occurred on earth.
- **A mass extinction is a global, catastrophic event with more than 65% of all species becoming extinct.**
- There have been 5 mass extinctions over the past 500 million years and in each case there was a huge loss of biodiversity.
- Both environmental and biological factors have led to mass extinctions. The suggested causes include global cooling, falling sea levels, predation and competition.
- Our planet is now in the midst of its sixth mass extinction of plants and animals — the sixth wave of extinctions in the past half-billion years.
- We're currently experiencing the worst spate of species die-offs since the loss of the dinosaurs 65 million years ago. Although extinction is a natural phenomenon, it occurs at a natural "background" rate of about one to five species per year. Scientists estimate we're now losing species at up to 1,000 times the background rate, with literally dozens going extinct every day.

17. Correct Option: (b)

Explanation:

Sarus Crane

- It is the tallest flying bird in the world.
- IUCN has categorized it as Vulnerable species.
- It is the state bird of Uttar Pradesh.
- It is India's only resident breeding crane.
- The population of Sarus Crane has been distributed in the Indian sub-continent, southeast
- Asia and northern Australia.
- The population of Sarus crane soared as per the recent 2018 census.

18. Correct Option: (c)

Explanation:

The Sumatran Rhinoceros (Dicerorhinus sumatrensis)

- There are five species of rhino: White rhino, Black rhino, Sumatran rhino, **Greater one-horned rhino (or Indian rhino)** and Javan rhino.
- Sumatran Rhinoceros is the **smallest** and most endangered of the five rhinoceros species.
- It is now thought to be regionally extinct in India, though it once occurred in the foothills of the Himalayas and north-east India.
- The Javan Rhinoceros (Rhinoceros sondaicus) is also believed to be extinct in India and only a small number survive in Java and Vietnam.
- Sumatran Rhinoceros is categorized as **Critically Endangered** as per IUCN red list.

19. Correct Option: (a)

Explanation:

Endangered Category (EN)

- A species is categorised in the Endangered category if it meets any of the following criteria:
  - **Reduction in population size by 70% over the last 10 years.**
  - **Population size is estimated to number fewer than 250 mature individuals.**
  - Quantitative analysis showing the probability of extinction in the wild in at least 20% within 20 years.

Extinct in the Wild (EW)

- A species is considered Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population well outside the past range and exhaustive surveys have failed to record an individual at their expected habitat.

20. Correct Option: (b)

Explanation:

Vulture Safety Zone

- The concept of a Vulture Safety Zone is unique for the Asian continent but similar VSZ is in operation in both Europe and Africa.
- Aim of developing Vulture Safety Zone is to establish targeted awareness activities surrounding a 150 km radius of vultures' colonies so that no diclofenac or the veterinary toxic drugs are found in cattle carcasses, the main food of vultures(to provide safe food).
- The Vulture Safety Zone has spread around in several hundred kilometers **covering the Jim Corbett in Uttarakhand, Dudhwa and Kartarniaghat forest reserves in Uttar Pradesh** which is adjoining the Indo-Nepal border. Nepal has already set up VSZ on the Indian borders.

21. Correct option: (b)

Explanation

- **Statement 1 is incorrect: Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) is a Central Sector scheme with 100% funding from Government of India.**

Supplementary notes

PM – KISAN scheme

- **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) is a Central Sector scheme with 100%** funding from Government of India.
- Under the Scheme an income support of Rs.6000/- per year is provided to all farmer families across the country in three equal installments of Rs.2000/- each every four months.
- The entire responsibility of identification of beneficiary farmer families rests with the State / UT Governments.
- The fund is directly transferred to the bank accounts of the beneficiaries.
- Farmers covered under the Exclusion Criteria of the Operational Guidelines are not eligible for the benefit of the Scheme.
- For enrollment, the farmer is required to approach the local patwari / revenue officer / Nodal Officer (PM-Kisan) nominated by the State Government.
- The Common Service Centres (CSCs) have also been authorized to do registration of the farmers for the Scheme upon payment of fees.
- Farmers can also do their self-registration through the Farmers Corner in the portal.
- Farmers can also edit their names in PM-Kisan database as per their Aadhaar database / card through the Farmers Corner in the portal.
- Farmers can also know the status of their payment through the Farmers Corner in the portal.

Major Objective of the scheme

- With a view to provide income support to all land holding eligible farmer families, the Government has launched PM-KISAN.
- The scheme aims to supplement the financial needs of the farmers in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income.

Definition of farmer's family

- A landholder farmer's family is defined as "a family comprising of husband, wife and minor children who own cultivable land as per land records of the concerned State/ UT".
- The existing land-ownership system will be used for identification of beneficiaries for calculation of benefit.

22. Correct option: (b)

Explanation

- **Statement 1 is incorrect:** Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) is a Centrally Sponsored Scheme
- **Statement 3 is incorrect:** The benefit cover will also include pre and post-hospitalisation expenses.

Supplementary notes

Ayushman Bharat Scheme

- Ayushman Bharat - Pradhan Mantri Jan Arogya Yojana (AB-PMJAY) is a Centrally Sponsored Scheme having central sector component under Ayushman Bharat Mission anchored in the Ministry of Health and Family Welfare (MoHFW).

- It is an umbrella of two major health initiatives, namely Health and wellness Centres and National Health Protection Scheme.
- AB-PMJAY provides a defined benefit cover of Rs. 5 lakh per family per year. This cover will take care of almost all secondary care and most of tertiary care procedures.
- To ensure that nobody is left out (especially women, children and elderly) there will be no cap on family size and age in the scheme.
- The benefit cover will also include pre and post-hospitalisation expenses.
- Benefits of the scheme are portable across the country and a beneficiary covered under the scheme will be allowed to take cashless benefits from any public/private empanelled hospitals across the country.
- The beneficiaries can avail benefits in both public and empanelled private facilities. All public hospitals in the States implementing AB-PMJAY, will be deemed empanelled for the Scheme.
- For beneficiaries, it will be a cashless, paper less transaction. Keeping in view the State specific requirements, States/ UTs will have the flexibility to modify these rates within a limited bandwidth.
- AB-PMJAY is an entitlement based scheme with entitlement decided on the basis of deprivation criteria in the SECC database.
- At the national level to manage, a National Health Agency has been set up. States/ UTs are advised to implement the scheme by a dedicated entity called State Health Agency (SHA).

23. Correct Answer: (a)

Explanation: Option (a) is correct

Supplementary Notes

- Prime Minister Narendra Modi recently highlighted in Mann Ki Baat program that ISRO is planning to launch its first Sun Mission Aditya L1. It is an ambitious plan of Indian Space Research Organisation (ISRO).
- Aditya - L1 is the first Indian mission to study the outermost region of the sun, called corona.
- **Aditya-1 to Aditya L-1 Mission:** The concept of the Aditya-1 mission was to carry 400 kg of the payload called Visible Emission Line Coronagraph (VELC). Earlier, this mission was planned to launch in an 800 km low earth orbit. But, it was found that a satellite placed in a halo orbit around the Lagrangian Point 1 (L1) can give a big advantage of viewing Sun. Thus, this mission was renamed **Aditya L-1 Mission.**
- The temperature of the solar corona goes beyond million degrees. From the ground, the corona could be seen only during total solar eclipses mainly due to the bright solar disc and the scattering of the sunlight by the earth's atmosphere. To mask the bright solar disc and study the corona, one has to go beyond the atmosphere.

Objectives

- The major scientific objectives of Aditya-1 mission are to achieve a fundamental understanding of the physical processes that heat the solar corona; accelerate the solar wind; and produce coronal mass ejections (CMEs).

Features of Aditya L1

- There will be six scientific payloads on this **400 kg satellite.**
- It will be placed in the halo orbit near the L1 point of the Sun-Earth system.
- The Aditya-L1 can now provide observations of the Sun's photosphere (soft and solid X-rays), chromosphere (UV) and the corona (visual and NIR) along with additional experiments.
- The 20 cm coronagraph, having a field of view of corona from 1.05 R to 3.0 R, will use an off axis parabolic mirror. The payload will have three CCD detectors system with a capability of simultaneous imaging in 6374 Å, 5303 Å and in 5800 Å for continuum/broadband.

6 Payloads of Aditya L-1 Mission

- **Visible Emission Line Coronagraph (VELC):** It will help to study the origin of Coronal Mass Ejection, diagnostic parameters of solar corona and its dynamics.
- **Solar Ultraviolet Imaging Telescope (SUIT):** This payload will help to find out the image of spatially resolved Solar Photosphere as well as to measure solar irradiance variations.
- **Plasma Analyser Package for Aditya (PAPA):** It has been designed to understand the energy distribution and composition of solar winds.

- **Solar Low Energy X-ray Spectrometer (SoLEXS):** It will monitor X-ray flares of Solar system to study the heating system of solar corona.
- **High Energy L1 Orbiting X-ray Spectrometer (HEL1OS):** It will help to observe the various dynamic actions happen in solar corona to provide an estimate of solar energy.
- **Magnetometer:** This payload will monitor and measure the magnitude of the nature of Interplanetary Magnetic Field in the solar system.

24. Correct Answer: (a)

Explanation: Option (a) is correct.

Supplementary Notes

- Recently, Russia's first regiment of Avangard hypersonic missiles has been put into service sending shock waves around the world.
- **Avangard is a hypersonic glide vehicle developed by Russia**. It's designed to be carried as a multiple independently targetable reentry vehicle (MIRV) payload by the UR-100UTTKh, RS-26 Rubezh and RS-28 Sarmat super-heavy ICBM.
- **Avangard can presumably reach speeds up to Mach 20** and can be used to deliver nuclear and conventional payloads.
- It's designed to sit atop an intercontinental ballistic missile (ICBM) and, once launched, it uses aerodynamic forces to sail on top of the atmosphere.
- Russia has successfully tested the missile at least twice and it is expected to enter service in late 2018 or early 2019.
- During the annual state-of-the-nation **in March 2018**, the President of Russia, Vladimir Putin unveiled the Avangard and described the Hypersonic Missile as one of the six next-generation weapons that are under development.
- The initial research on hypersonic warheads started back in the mid-1980s at the time of the USSR or the Soviet Union which was ceased at the time of the dissolution of the Soviet Union in 1991. Later around the mid-1990s, Russia started working back on the project under the name 'Project 4202'. Since then, Russia has made around 14 reported tests of the Avangard Hypersonic Missile**. A Hypersonic Missile means that can travel at speed of above Mach 5 (Mach 5 speed is 5 times more than the speed of sound).**

Strategic Implications

- Avangard is a strategically valuable weapon for two main reasons, its maneuverability and its versatility.
- The weapon is capable of performing sharp maneuvers on its way to targets making it absolutely invulnerable for any missile defense system.
- It also boasts the ability to deploy countermeasures during flight allowing it to penetrate air and missile defenses virtually undetected.
- As for its versatility, Avangard can be fitted with both nuclear and conventional payloads depending on a situation. Moreover, even without an explosive payload, the precision and speed of the weapon is believed to have enough force to obliterate smaller targets, such as vehicles or bases, making it an invaluable weapon in the Russian arsenal.

25. Correct Answer- (c)

Explanation-

Statement (1) and (2) are correct- The Convention on Cybercrime, also known as the Budapest Convention on Cybercrime or the Budapest Convention, is the first international treaty seeking to address Internet and computer crime (cybercrime)by harmonizing national laws, improving investigative techniques, and increasing cooperation among nations.

It was drawn up by the Council of Europe in Strasbourg, France, with the active participation of the Council of Europe's observer states Canada, Japan, Philippines, South Africa and the United States.

Statement (3) is incorrect- It is open for ratification even to states that are not members of the Council of Europe.

Supplementary notes

Budapest Convention

- Since it entered into force, important countries like Brazil and India have declined to adopt the Convention on the grounds that they did not participate in its drafting.
- Russia opposes the Convention, stating that adoption would violate Russian sovereignty, and has usually refused to cooperate in law enforcement investigations relating to cybercrime.

- It is the first multilateral legally binding instrument to regulate cybercrime.
- Since 2018, India has been reconsidering its stand on the Convention after a surge in cybercrime, though concerns about sharing data with foreign agencies remain.
- The Convention is the first international treaty on crimes committed via the Internet and other computer networks, dealing particularly with infringements of copyright, computer-related fraud, child pornography, hate crimes, and violations of network security.
- It also contains a series of powers and procedures such as the search of computer networks and lawful interception.
- Its main objective, set out in the preamble, is to pursue a common criminal policy aimed at the protection of society against cybercrime, especially by adopting appropriate legislation and fostering international cooperation.

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TEST

DAY - 36

Time Allowed: 30 mins **Maximum Marks: 50**

1. Consider the following statements regarding Earth Overshoot Day:

1. It is not a fixed date as it keeps changing each year.
2. In 2019, it was observed as the earliest ever.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

2. Consider the following statements regarding Secure Himalaya project:

1. It has been launched by MOEFCC and IUCN.
2. Its main objective is to protect Kashmiri Stag/Hangul.
3. North-Eastern states are not covered in this project.

Which of the above statements is/are ***incorrect***?

(a) 1 only

(b) 1 and 2 only

(c) 3 only

(d) 2 and 3 only

3. The CoP 14 to the United Nations Convention to Combat Desertification was held in India. With reference to this, consider the following statements:

1. UNCCD is one of the results of the Earth Summit at the Rio Conference, 1992.
2. Its decisions are merely advisory in nature.
3. CoP 13 was held in China.

Which of the above statements is/are correct?

(a) 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

4. Where is India's first garbage café situated?

(a) (a) Uttar Pradesh

(b) (b) Chhattisgarh

(c) (c) Jharkhand

(d) (d) West Bengal

5. Which of the following statements is/ are correct?

1. Deforestation means a decrease in the area covered by forests whereas, forest degradation does not involve a reduction in the forest area.
2. Land Degradation Neutrality is one of the targets of the SDGs.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

6. Which of the following conservation strategies does not involve community participation directly?

(a) Joint Forest Management

(b) BeejBachaoAndolan

(c) Chipko Movement

(d) Demarcation of Wildlife sanctuaries

7. Which of the following is called climate change's equally evil twin?

(a) Ozone depletion

(b) Ocean acidification

(c) Ocean deoxygenation

(d) Forest degradation

8. How does the ocean acidification impact Coral reefs?

1. It limits the formation of Calcium bicarbonate skeleton.
2. They do not affect the pre existing skeleton but hinders the process of new coral formation.
3. It may also impact corals before they even begin constructing their homes.

Select the correct option using the codes given below:

(a) 3 only

(b) 2 only

(c) 1 and 2 only

(d) 1, 2, and 3

9. Which of the following is *not* a consequence of the deforestation:

1. Landslides in hilly areas
2. Silting of rivers and lakes
3. Loss of CO_2 sink
4. Desertification

Select the correct option using the codes given below:

(a) 1 only

(b) 3 only

(c) 2 and 4 only

(d) None of the above

10. Identify the correct human activity which degrades the environment:

1. Rapid industrializations
2. Overuse of consumer durable goods
3. Excessive irrigation

Select the correct option using the codes given below:

(a) 2 only

(b) 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

11. Consider the following statements:

1. Yokkaichi asthma can be occurred due to the burning of petroleum.
2. Yusho Poisoning is due to the contamination of polychlorinated biphenyls.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

12. Which of the following pairs is/are *incorrectly* matched?

	Diseases:	**Causes**
1.	Itai-Itai:	Cadmium
2.	Blue baby syndrome:	Fluorides
3.	Black Lung disease:	Coal dust

Select the correct option using the codes given below:

(a) 2 only

(b) 3 only

(c) 1 and 3 only

(d) 2 and 3 only

13. Which of the following pair is *incorrectly* matched pertaining to the e-waste metals and their respective sources?

(a) **Beryllium** – Glass panels

(b) **Mercury** – Thermostats

(c) **Hexavalent Chromium** – PVC

(d) **Barium** – Cathode Ray tube

14. Solid wastes are the discarded materials which needs to be treated and disposed. In light of this statement, which of the following are the best ways to dispose or treat solid waste?

(a) Incineration plants, Pyrolysis, Sanitary landfills and Open dumps

(b) By in-situ bioremediation techniques

(c) Mycromediation and Mycofiltration

(d) All of the above

15. Which of the following statements correctly defines the Putrescibility?

(a) It is the process of decomposition of organic matter in water.

(b) It is a process in which hemoglobin reacts with non-functional methaemoglobin and impairs oxygen transport.

(c) It is a process in which water is purified by extracting toxic materials and heavy metals.

(d) It is a process of treatment of sewage water.

16. Which among the following statement is not correct pertaining to the Waste Minimization Circles (WMC)?

(a) It is implemented under the United Nations Environment Programme (UNEP) with the assistance of the Central Pollution Control Board.

(b) It aims to realize the objectives of the Policy Statement for Abatement of Pollution (1992).

(c) It emphasizes the participation of citizens and the government in environmental monitoring.

(d) None of the above

17. With reference to a Special Report on Climate Change and Land as seen in news recently, consider the following statements:

1. It is published by Intergovernmental Panel on Climate Change (IPCC).
2. The report claims that global food wastage is also a contributor to climate change.
3. As per the report, land degradation is both the cause and consequence of climate change.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

18. World Day to Combat Desertification and Drought (WDCD) is observed on June 17th every year. Consider the following statements with reference to it:

1. It aims to promote public awareness to combat land degradation and expansion of existing deserts.
2. Its 2019 theme is 'Land has true value. Invest in it.'
3. Agenda for Sustainable Development Goal 15 emphasizes the need to halt and reverse land degradation.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 3 only

(c) 3 only

(d) 2 and 3 only

19. Consider the following statements about Rotterdam Convention.

1. It is a multilateral treaty on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
2. It is jointly administered by the World Health Organisation and the United Nations Environment Programme (UNEP).

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

20. Which of the following statements is/are correct with respect to National Afforestation Program (NAP)?

1. It is being operated as a 100% Central Sector Scheme.
2. The objective of the scheme is to develop the forest resources with people's participation, with focus on improvement in livelihoods of the forest-fringe communities, especially the poor.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

21. Consider the following statements regarding Prime Minister Van DhanYojana

1. The Van Dhan Scheme is an initiative of the Ministry of Environment Forest and Climate Change
2. It is a Market Linked Tribal Entrepreneurship Development Program.

Which of the following statement is/ are correct?

(a) **1 only**

(b) **2 only**

(c) **Both 1 and 2**

(d) **Neither 1 nor 2**

22. What are the major problems that plagued the effective implementation of mid-day meal scheme?

1. There are too many layers of government involved in the scheme, resulting in poor information, coordination and monitoring.
2. Rampant corrupt practices have been found from food procurement to distribution of hot cooked meals among children.
3. Caste bias and discrimination continues in the implementation of the scheme
4. It has decreased enrollment in schools, decreased attendance in schools, reduced performance of students in class in terms of better attention span and academic progress.

Choose the correct option

(a) **1 and 2**

(b) **1, 2 and 3**

(c) **1, 2, 3 and 4**

(d) **2, 3 and 4**

23. Which of the following activities can be said to be a cause of climate change?

1. Land degradation
2. Industrial heat
3. Meat consumption

Choose the correct answer:

(a) Only 1

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

24. ISRO recently launched spy satellite, RISAT-2BR1, in the orbit. Which of the following statements are correct about this launch?

1. RISAT-2BR1 was launched on PSLV-C48
2. This launch carried customer satellites of United States, France, Japan, and Israel.
3. RISAT-2BR1 will be used in fields of agriculture and disaster management support.

Choose the correct answer:

(a) Only 1

(b) 1 and 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

25. Recently, a newly discovered species was named *Marengo sachintendulkar*. Which of the following statements is correct regarding this newly discovered specie?

1. Marengo sachintendulkar is a squirrel.
2. Marengo sachintendulkar is a round-bodied squirrel.
3. Another, jointly discovered specie, *IndomarengoChavarapatera,* was named after a social reformer from Kerala.

Choose the correct answer:

(a) 1 and 2 only

(b) Only 2

(c) Only 3

(d) 1, 2 and 3

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ANSWER HINTS

DAY - 36

1. Correct Option: (c)

Explanation:

Earth Overshoot Day

- Earth Overshoot Day (EOD), previously known as Ecological Debt Day (EDD), is the calculated illustrative calendar date on which humanity's resource consumption for the year exceeds Earth's capacity to regenerate those resources that year.
- Earth Overshoot Day is calculated by the Global Footprint Network.
- **It keeps changing each year and is observed earlier than the previous year.**
- **In 2019, it was observed on July 29, the earliest ever.**

2. Correct Option: (b)

Explanation:

Secure Himalaya project

- SECURE Himalaya project was launched in the Global Wildlife Programme (GWP) conference as a collaboration between **the Environment, Forests and Climate Change Ministry (MoEFCC) and the UNDP (United Nations Development Programme)**
- It covers the high Himalayan Ecosystem spread over four states viz**. Himachal Pradesh, Jammu, and Kashmir, Uttarakhand, and Sikkim.**
- The key focus of the project is on improving the enforcement to ensure the **protection of snow leopard** and other endangered species and ensuring a secure livelihood to the people in the region.

3. Correct Option: (b)

Explanation:

United Nations Convention to Combat Desertification

- The United Nations Convention to Combat Desertification (UNCCD) is the **sole legally binding** international agreement linking environment and development to sustainable land management.
- India is a signatory to the United Nations Convention for Combating Desertification (UNCCD).
- **It is one of the three conventions of the Earth Summit at the Rio Conference, 1992.** These are the United Nations Framework Convention on Climate Change (UNFCC), United Nations Convention to Combat Desertification(UNCCD), and Convention on Biological Diversity (CBD).
- One of the main functions of the COP is to review reports submitted by the Parties detailing how they are carrying out their commitments; the COP makes recommendations on the basis of these reports. It also has the power to make amendments to the Convention or to adopt new annexes, such as additional regional implementation annexes. In this way, the COP can guide the Convention as global circumstances and national needs change. To assist the COP, the Convention provides for subsidiary bodies and allows the COP to establish additional ones if necessary.
- **CoP 13 was held at Ordos, China.**
- The permanent secretariat of the Convention was established in Article 23 of the UNCCD. It has been located in Bonn, Germany since January 1999.

4. Correct Option: (b)

Explanation:

- India's first garbage cafe is opened in Ambikapur city of Chhattisgarh.

5. Correct Option: (c)

Explanation:

Land/forest management

- Deforestation: this involves a decrease in the area covered by forest. However, it cannot be so defined without adding a reference to its use (or allocation). In point of fact, there exist certain forms of forest utilization - and priority objectives of forest management - that clear temporarily the forest cover while guaranteeing its maintenance. This is the case of clearcutting of areas where the forest will regenerate itself or be regenerated, or of the final cut in an even-aged forest silvicultural treatment once natural regeneration has been assured. In other words, there is no deforestation if there is a guarantee of continuity in maintaining the forest cover;
- Degradation: this does not involve a reduction of the forest area, but rather a quality decrease in its condition, this being related to one or a number of different forest ecosystem components (vegetation layer, fauna, soil, etc.), to the interactions between these components, and more generally to its functioning.
- Land Degradation Neutrality is one of the targets of the SDGs in target number 15.3.

6. Correct Option: (d)

Explanation:

Forest Conservation

- **Chipko movement** in the Himalayas has not only successfully resisted deforestation in several areas but has also shown that **community afforestation** with indigenous species can be enormously successful.
- **Farmers and citizen's groups** like the **BeejBachaoAndolan in Tehri and Navdanya** have shown that adequate levels of diversified crop production without the use of synthetic chemicals are possible and economically viable.
- In India, the **Joint Forest Management (JFM) program** furnishes a good example for involving local communities in the management and restoration of degraded forests. The program has been in formal existence since 1988 when the state of Odisha passed the first resolution for joint forest management.
- JFM depends on the formation of local (village) institutions that undertake protection activities mostly on degraded forest land managed by the forest department.
- In return, the members of these communities are entitled to intermediary benefits like non-timber forest produces and share in the timber harvested by 'successful protection'.

7. Correct Option: (b)

Explanation:

Ocean acidification

- **Ocean acidification is sometimes called "climate change's equally evil twin**," and for good reason: it's a significant and harmful consequence of excess carbon dioxide in the atmosphere that we don't see or feel because its effects are happening underwater.
- At least one-quarter of the carbon dioxide (CO2) released by burning coal, oil and gas doesn't stay in the air but instead dissolves into the ocean. Since the beginning of the industrial era, the ocean has absorbed some 525 billion tons of CO2 from the atmosphere, presently around 22 million tons per day.

8. Correct Option: (a)

Explanation:

Impact of ocean acidification on coral reefs

- Reef-building corals craft their own homes from **calcium carbonate**, forming complex reefs that house the coral animals themselves and provide habitat for many other organisms.
- **Acidification may limit coral growth by corroding pre-existing coral skeletonswhile simultaneously slowing the growth of new ones,** and the weaker reefs that result will be more vulnerable to erosion. This erosion will come not only from storm waves but also from animals that drill into or eat coral.
- A recent study predicts that by roughly 2080 ocean conditions will be so acidic that even otherwise healthy coral reefs will be eroding more quickly than they can rebuild.
- **Acidification may also impact corals before they even begin constructing their homes. The eggs and larvae of only a few coral species have been studied, and more acidic water didn't hurt their development while they were still in the plankton. However,**

larvae in acidic water had more trouble finding a good place to settle, preventing them from reaching adulthood.

9. Correct Option: (d)

Explanation:

Consequences of deforestation

- Soil erosion: Trees intercept rainfall and cutting of trees and removal of plants leads to soil erosion. Plants' roots hold the soil in place. With the loss of protecting cover of plants, topsoil, which is rich in organic matter, is washed away and the soil loses its fertility.
- **Landslides: Removal of trees from forests leads to soil erosion. Ultimately cause landslides in hilly areas. This is because the roots of trees hold the soil in position;**
- **Silting: The loss of trees from forests also causes silting of rivers and lakes as loose soil gets washed with rainwater and reaches water bodies;**
- **Loss of wild habitat**: Wild animals live in forests. Cutting forests means loss of their habitat which in turn renders them endangered or even extinct.
- Climate Change: Deforestation results in a change in climate since trees make the surroundings humid. The loss of trees leads to loss of humidity. Also, transpiration from plants makes rain clouds and so rainfall is reduced due to deforestation. **This causes desertification.**
- **Loss of CO_2 sink: Pollutants released by industries take CO_2 are taken up by trees. When forests are denuded, This CO_2 sink is lost and CO_2 collects in the environment.**
- **Pollution**: When trees are cut to use for making furniture or paper, the sawmills and paper mills pollute water in which they dump the waste.
- **Loss of medicinal and other useful plants**: Unique medicinal plants grow in certain forests. They are lost due to deforestation. Aromatic herbs, rubber trees, and other useful plants are also lost due to deforestation Thus forest destruction leads to large scale environmental degradation.

10. Correct Option: (d)

Explanation:

Impact of Industrialization on the Environment

Industrialization led to environmental degradation like the following reasons:

- Natural resources used as raw materials by industry are depleting rapidly.
- Industries generate a lot of toxic gases, and liquid effluents leading to environmental degradation.
- Industries generate a large amount of waste, which piles up in the environment. Disposal of waste not only needs land but also pollutes the environment and poses hazards to human health.
- Industries use up a lot of fossil fuels as a source of energy. Accelerated consumption of fossils fuels is depleting their stock as they are limited and non-renewable. But the burning of fossil fuels releases CO_2 in the atmosphere leading to global warming.

Impact of Modernized Agriculture on Environment

An increase in food production to achieve self-sufficiency is an important objective. Intensive agriculture, unfortunately, may lead to serious damage to the environment. Some of these are listed below:

- Forests have been cleared transformed into farmlands for growing food crops.
- **Excessive irrigation and poor drainage** causes waterlogging and kill plants.
- Pollution by agrochemicals like increased use of synthetic fertilizers and pesticides
- Agro-industrial wastes are generated. e.g. crop residues such as paddy, jawar, gram straws, cotton straws, sugarcane trash, and coconut shells, etc. pile up causing environmental degradation.
- High yielding varieties (HYV) of food crops replaced various traditional crop varieties.

Traditional agriculture was based on a multi-cropping system, i.e. growing of food crops, fodder, and firewood crops together. This practice had been replaced by monoculture i.e., growing of only one kind of crop (such as wheat, etc) in a field of a specific set of nutrients making soil unfit for growing other crops but is being considered again.

Urbanization and Environment

Growth of cities leads to increasing demand for environmental resources leading to following changes-

- Cultivated land was lost forever for building houses, industries, roads, and other facilities.
- The availability of water becomes more and more scarce.
- In cities, black smoke emitted from industries, buses, truck, etc. cause air pollution. A large amount of garbage is generated and not disposed of properly. As a result, garbage remains scattered and unattended. Domestic and industrial effluents are drained into rivers and lakes. High noise levels are a common feature of the urban environment.
- Inadequate facilities and lack of basic amenities in slums lead to unhygienic conditions and social distortion and crime.

Need for various commodities

- **Articles of everyday use such as plastic vessels, mugs, buckets, etc., agricultural implements, machinery, chemicals, cosmetics, etc are manufactured in factories.**
- The raw materials and fossil fuels and water needed to run industries for manufacturing these products lead to their depletion.
- Mining activities have depleted stock of mineral resources particularly fossil fuels.

11. Correct Option: (c)

Explanation:

Environmental related diseases

- In 1968, more than one thousand people in western Japan became seriously ill. They suffered from fatigue, headache, cough, numbness in the arms and legs, and unusual skin sores. Pregnant women later delivered babies with birth defects. These people had eaten food that was cooked in contaminated rice oil. **Toxic chemicals called PCBs (polychlorinated biphenyls) had accidentally leaked into the oil during the manufacturing process**. Health experts now refer to this illness as "**Yusho**," which means "oil disease."
- **Yokkaichi asthma** occurred in the city of Yokkaichi in Mie Prefecture, Japan between 1960 and 1972. **The burning of petroleum and crude oil** released large quantities of sulfur oxide that caused severe smog, resulting in severe cases of chronic obstructive pulmonary disease, chronic bronchitis, pulmonary emphysema, and
- bronchial asthma among the local inhabitants.

12. Correct Option: (a)

Explanation:

Environmental related diseases

- **Itai-Itai disease** was the documented case of mass **cadmium** poisoning in Toyama Prefecture, Japan, starting around 1912. The cadmium poisoning caused softening of the bones and kidney failure. The cadmium was released into rivers by mining companies in the mountains.
- **Blue baby syndrome** is believed to be caused by high **nitrate contamination** in groundwater resulting in decreased oxygen-carrying capacity of hemoglobin in babies leading to death. The groundwater is thought to be contaminated by leaching of nitrate generated from fertilizer used in agricultural lands and waste dumps. It may also be related to some pesticides (DDT, PCBs, etc), which cause ecotoxicological problems in the food chains of living organisms, increasing BOD, which kills aquatic animals.
- **Pneumoconiosis** is caused due to the deposit of **coal dust** in the lungs of coal miners, leads to a serious lung disease called **Black Lung disease.**

13. Correct Option: (a)

Explanation:

E-Waste Pollutants

- E-Waste or electronic waste includes discarded and end-of-life electronic products ranging from computers, equipment used in Information and Communication Technology (ICT), home appliances, audio, and video products and all of their peripherals.
- E-Waste can be hazardous if it is recycled in primitive ways.

- The related e-waste metals and their sources are:
  - **Beryllium** – It is commonly found on motherboards and finger clip and is used as a copper-beryllium alloy to strengthen connectors.
  - **Mercury** – It is estimated that 22% of the yearly world consumption of mercury is used in electrical and electronic equipment is used in **thermostats**, sensors, relays, switches, medical equipment, lamps, mobile phones, and batteries.
  - **Hexavalent Chromium** (Chromium VI) - It is used as a corrosion protector of untreated and galvanized steel plates and as a decorative or hardener for steel housings Plastics (including **PVC**).
  - **Barium** – It is a soft silvery-white metal that is used in computers in the front panel of a **Cathode Ray Tube**, to protect users from radiation.
  - **Lead – It is u**sed in glass panels and gaskets in computer monitors.

14. Correct Option: (a)

Explanation:

Treatment and disposal of solid waste

- **Open dumps:** Open dumps refer to uncovered areas that are used to dump solid waste of all kinds. The waste is untreated, uncovered, and not segregated.
- **Landfills:** Landfills are generally located in urban areas. It is a pit that is dug in the ground. The garbage is dumped and the pit is covered with soil everyday thus preventing the breeding of flies and rats. Thus, every day, garbage is dumped and sealed. After the landfill is full, the area is covered with a thick layer of mud and the site can thereafter be developed as a parking lot or a park.
- **Sanitary landfills:** Sanitary landfill is more hygienic and built in a methodical manner to solve the problem of leaching. These are lined with materials that are impermeable such as plastics and clay, and are also built over impermeable soil.
- **Incineration plants**: The process of burning waste in large furnaces at high temperature is known as incineration. In these plants the recyclable material is segregated and the rest of the material is burnt and ash is produced.
- **Pyrolysis**: It is a process of combustion in absence of oxygen or the material burnt under controlled atmosphere of oxygen. It is an alternative to incineration. The gas and liquid thus obtained can be used as fuels.
- **Composting**: Composting is a biological process in which micro-organisms, mainly fungi and bacteria, decompose degradable organic waste into humus like substance in the presence of oxygen.
- **Vermiculture:** It is also known as earthworm farming. In this method, Earth worms are added to the compost. These worms break the waste and the added excreta of the worms makes the compost very rich in nutrients.

15. Correct Option: (a)

Explanation:

Putrescibility

- It is the process of decomposition of organic matter present in water by microorganisms using oxygen.

16. Correct Option: (a)

Explanation:

Waste Minimization Circles (WMC)

- WMC helps Small and Medium Industrial Clusters in waste minimization in their industrial plants.
- This is assisted by the World Bank with the Ministry of Environment and Forests and Climate Change acting as the nodal ministry. The project is being implemented with the assistance of the National Productivity Council (NPC), New Delhi.
- **The initiative also aims to realize the objectives of the Policy Statement for Abatement of Pollution (1992)**, which states that the government should educate citizens about environmental risks, the economic and health dangers of resource degradation and the real economic cost of natural resources.
- **The policy also recognizes that citizens and non-governmental organizations play a role in environmental monitoring**, therefore, enabling them to supplement the regulatory system and recognizing their expertise where such exists and where their commitments and vigilance would be cost-effective.

17. Correct Option: (d)

Explanation:

Climate Change and Land

- **The IPCC approved and accepted Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems** at its 50th Session held on 2 – 7 August 2019.
- **This is the first time that IPCC has solely focused on land sector.**
- The current report talks about the contribution of land-related activities to global warming — how the different uses of land, like agriculture, industry, forestry, cattle-rearing, and urbanization, was affecting emissions of greenhouse gases.
- An important part of the report talks about the manner in which even existential activities like food production contributes to global warming and is also affected by it.
- The report says that if pre-production activities like cattle rearing and post-production activities like transport, energy and food processing, is taken into account, then food production could contribute as much as 37 per cent of all greenhouse gas emissions every year.
- **It points out that nearly 25 per cent of all food produced is either lost or wasted. And even the decomposition of the waste releases emissions.**
- The report shows that sustainable land management including sustainable forest management can help reduce land degradation and also tackle climate change.
- Coordinated efforts to tackle climate change will also help improve land, food security and nutrition etc.
- Reducing over-consumption and waste of food, eliminating the clearing and burning of forests, preventing over-harvesting of fuel wood, and reducing greenhouse gas emissions will help to address land related climate change issues.

Land-Climate Link:

- Land use and changes in land use have always been an integral part of the conversation on climate change. That is because land acts as both the source as well as a sink of carbon.
- **Land Degradation is both the cause and consequence of climate change.**
- Climate change causes the land to degrade through both gradual changes in temperature and rainfall patterns, as well as changes in the distribution and intensity of extreme events.
- Degraded land is less productive which reduces its ability to absorb carbon thus exacerbating climate change.

18. Correct Option: (c)

Explanation:

- **Statement 1 is incorrect:** Desertification is the degradation of land in arid, semi-arid and dry sub-humid areas. it doesn't refer to the expansion of existing deserts.
- **Statement 2 is incorrect:** WDCD 2019 marks the 25th anniversary of the UN Convention to Combat Desertification (UNCCD), So this year campaign will run under the slogan 25 years - Let's grow the future together.'

World Day to Combat Desertification and Drought (WDCD)

- World Day to Combat Desertification and Drought Observed every year on **17 June**, to **promote public awareness of international efforts** to combat desertification and **land degradation neutrality is achievable through problem-solving, strong community involvement and co-operation at all levels.**
- Desertification is the degradation of land in arid, semi-arid and dry sub-humid areas. it doesn't refer to the expansion of existing deserts.
- The Day was **declared by the United Nations General Assembly in 1995**. Many countries, groups and individuals celebrate and observe WDCD by organizing a variety of outreach activities and awareness raising events.
- WDCD 2019 marks the 25th anniversary of the UN Convention to Combat Desertification (UNCCD), So this year campaign will run under the slogan 25 years - Let's grow the future together.'
- The **2030 Agenda for Sustainable Development** especially the **Goal 15 emphasizes the need to halt and reverse land degradation**. Sustainable Development Goals SDG **Target 15.3 aims to achieve a Land Degradation Neutral World by the year 2030**, by maintaining and increasing the amount of healthy and productive land resources.

19. Correct Option: (a)

Explanation:

- **Statement 2 is incorrect:** It is jointly administered by the United Nations Food

and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP).

Rotterdam Convention

- **Rotterdam Convention is also called as the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade**

What it does?

- The convention promotes open exchange of information between importers-exporters of hazardous chemicals**.**
- Calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans.
- Signatory nations can decide whether to allow or ban the importation of chemicals listed in the treaty
- Exporting countries are obliged to make sure that producers within their jurisdiction comply.
- **It is jointly administered by the United Nations Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP).**

20. Correct Option: (b)

Explanation:

National Afforestation Program

- The Ministry of Environment, Forest and Climate Change (MoEFCC) is implementing plantation/afforestation schemes in the forest areas with participatory approach.
- The plantation species under the schemes is selected by the implementing agencies/ the members of Joint Forest Management Committees (JFMC) on the basis of their needs, ecological conditions and other local factors in consultation with the Forest Department.
- The native forest species are encouraged for plantation in the forest areas giving importance to trees with multiple uses.
- MoEFCC has not issued any specific direction for plantation of fruit bearing trees as it is decided by the JFM Committees considering local conditions and the micro plan of the area.
- The overall objective of the National Afforestation Programme (NAP) scheme is ecological restoration of degraded forests and to develop the forest resources with peoples' participation, with focus on improvement in livelihoods of the forest-fringe communities, especially the poor.
- NAP aims to support and accelerate the on-going process of devolving forest conservation, protection, management and development functions tothe Joint Forest Management Committees (JFMCs) at the village level, which are registered societies.
- The scheme is implemented by three tier institutional setup through the State Forest Development Agency (SFDA) at the state level, Forest Development Agency (FDA) at the forest division level and JFMCs at village level.
- The major components of the scheme includes afforestation under Seven plantation models, maintenance of previous years plantations and Ancillary Activities like soil and moisture conservation activities (SMC), fencing, overheads, monitoring and evaluation (M&E), micro-planning, awareness raising, Entry Point Activities (EPA) etc.
- The Scheme is demand driven and afforestation area is sanctioned on the basis of past performance, potential degraded forest land available for eco-restoration and availability of budget.
- The Annual Plan of Operation (APO) of SFDAs is approved as per Guidelines of NAP. NAP is a centrally sponsored scheme which is implemented with the fund sharing pattern of 60: 40 percent between Centre and States wherein the sharing pattern for Northeastern and hilly States is 90:10.
- The central share of funds are released through State Government and state government transfers the funds to SFDA along with its state share which sometime causes delay in fund availability to SFDAs for implementation of NAPcausing delay in submission of mandatory documents for subsequent release of funds.

21. Correct option: (b)

Explanation

- Statement 1 is incorrect: The Van Dhan Scheme is an initiative of the Ministry of Tribal Affairs and TRIFED.

Supplementary notes

- Prime Minister Van DhanYojana
- TRIFED under Ministry of Tribal Affairs is going to forge a partnership with RituBeri Designs to promote Indian tribal crafts and culture across the country and the world.

- Ms. Beri will be the Chief Design Consultant for Tribes India.
- PradhanMantri Van DhanYojana (PMVDY) is a Market Linked Tribal Entrepreneurship Development Program for forming clusters of tribal SHGs and strengthening them into Tribal Producer Companies has been launched with participation from all the 27 States from the Country.
- The Van Dhan Scheme is an initiative of the Ministry of Tribal Affairs and TRIFED.
- It was launched in 2018 and seeks to improve tribal incomes through value addition of tribal products.
- The scheme will be implemented through Ministry of Tribal Affairs as Nodal Department at the Central Level and TRIFED as Nodal Agency at the National Level.
- At State level, the State Nodal Agency for MFPs and the District collectors are envisaged to play a pivot role in scheme implementation at grassroot level.
- Locally the Kendras are proposed to be managed by a Managing Committee (an SHG) consisting of representatives of Van Dhan SHGs in the cluster.

22. Correct Answer: (b)

- Explanation: 4th statement is incorrect: Mid day meal scheme has increased enrollment in schools, increased attendance in schools, improved performance of students in class in terms of better attention span and academic progress.

Supplementary Notes

- Issues with Mid-Day Meal Scheme
- Aim: The program aims to "enhance enrollment, retention and attendance and simultaneously improve nutritional levels among children." The program has the potential to end chronic malnutrition and starvation. However, the program has many issues which the government must immediately address.

Organizational problems:

- There are too many layers of government involved in the scheme, resulting in poor information, coordination and monitoring.
- A few examples of poor monitoring and coordination show the issues this scheme encounters. In July, 2013, 23 children from the Indian state of Bihar died as a result of unsafe food preparation.
- No special structure is there to look after the quality of food served, hygienic conditions and other aspects of the scheme.

Corrupt practices

- Rampant corrupt practices have been found from food procurement to distribution of hot cooked meals among children.
  - ➤ A video showed plain chapatis being served with salt in a school.
  - ➤ Another video revealed how a litre of milk was mixed with water so that it would suffice for the more than 80 children present that day in school.
  - ➤ As per the government norms, every child is entitled to receive 150 ml of milk as part of the mid-day meal.

Social Discrimination

- Caste bias and discrimination continues in the implementation of the scheme
- It has been found in many schools that foods cooked by lower caste cooks were not eaten by children.
- Food is central to the caste system, so in many schools, children are made to sit separately according to their caste status.

Unhygienic issue

- There have been multiple incidents of unhygienic mid-day meals.
- Dead rats, worms, lizards and insects have been spotted in mid-day meals served at schools across India.
- Recently, the CAG found that schools in Punjab were noted to have no water testing, no use of gloves, and violation of prescribed menus.
- Children were made to wash utensils, despite the school having hired staff to do so

Fortification Issue

- Sub-standard food is served in many schools because there is not enough monitoring and accountability at the lower levels
- 85% of Indian children between the ages of 7 to 12 have high rates of micronutrients deficiencies (in iron, folic acid, Vitamin A). These can impair cognitive developments; impair concentration, cause school absenteeism and even illness. As successful pilot projects in Odisha have shown, staple essentials of Mid-Day meals like rice and wheat like can fortified with micronutrients. Micronutrient premixes can be added to cooked meals. These have shown success in

reducing anaemia.

- However, fortification has only made its debut in some states like Karnataka instead of a pan-India rollout.

Irregular Food Supplies

- Constant food and fuel supplies are not provided to the schools
- It is also a difficult challenge to deliver food to rural areas. Roads are not paved and the infrastructure is lacking. Even if food makes it to these remote areas, kitchens to cook the food in are not available within the schools.

Problems faced by Teachers

- Teachers play a key role in the successful implementation of mid-day meal scheme at school level.

Mid-Day Meal Scheme - Facts

- Scheme covers all children studying in class I to VIII.
- The programme supplies free lunches on working days for children in primary and upper primary classes in government, government aided, local body, Education Guarantee Scheme, and alternate innovative education centres, Madarsa and Maqtabs supported under SSA and National Child Labour Project schools run by the ministry of labour.
- MDM is covered by National Food Security Act, 2013.
- Ministry/Department : Department of School Education & Literacy, Ministry of Human Resource Development
- Objective: To enhance, retention and attendance and simultaneously improving nutritional levels among children.

Factual Information:

- Started in 1995 as National Programme of Nutritional Support to Primary Education
- To achieve the above objectives, a cooked mid-day meal with the following nutritional content is provided to all eligible children.
  - For Primary students:
    - Calories 450
    - Protein 12 gms
  - For Upper Primary students:
    - Calories 700
    - Protein 20 gms
  - Adequate quantities of micro-nutrients like Iron, Folic Acid and Vitamin-A.

- Teachers face a number of problems such as problem of management of the mid-day meal, wastage of food by the students, insufficient and delayed receipt of funds, increased workload of teachers, procuring dry ration from the retail shops, lack of infrastructure for storage, cooking and serving food, lack of safety provisions, unhygienic surroundings, etc.

Lack of Documentation

- A record of what students eat is not maintained.
- In some regions, one can see the daily menu painted on the school wall.
- Writing letters to authorities and documenting the gap between the painted menu and what is actually served might be a great activity.

Other issues

- Other issues range from delayed payments, poor food quality, cooks not receiving pay and food being wasted. There is even embezzlement of the money by way of fake enrollments.
- The scheme is perceived as charity, not a civic responsibility. With the growing shift of the better-off parents to private schools, government schools are viewed as places for the poor. Therefore, the mid-day meal is associated with poverty both in public perception and state policies.

Achievements of Mid-day Meal Scheme

- **Increased Enrollment and Attendance:** The meal scheme is generally a successful one as it has led to "increased enrollment in schools, increased attendance in schools, improved performance of students in class in terms of better attention span and academic progress.
- **Improved nutritional status of students:** Studies have found that the schemereduced the daily protein deficiency

of a primary-school student by 100 percent, the calorie deficiency by almost 30 percent and the daily iron deficiency by nearly 10 percent.

- There is a dramatic fall in underweight and stunted children (from 48 % to 39 % (2005-6 and 2013-14).

23. Correct Option (d)

Explanation: All statements are correct
Supplementary Notes

- **Co2 emission on rise:** According to the Global Carbon Project, CO2 emissions are on rise by 0.6% in 2019 (2.1% in 2018). The reductions are not enough to stop global warming. Despite a significant decline in coal consumption in US and Europe, the higher global emissions are attributed to growth in natural gas and oil usage.
- **Industrial heat:** Industrial products are essential to construction, infrastructure and manufacturing, but making them requires a lot of heat—heat that emits more carbon dioxide than all the world's cars and planes. Many industrial processes start with melting rocks by burning fossil fuels, and development of alternative technologies is far behind and expensive.
- **Land degradation:** Land degradation, mainly due to human activities like deforestation, mining/quarrying, construction, roads, other infrastructure for economic development, human settlements for increasing population, etc., is a contributing factor to climate change. Even agriculture and related activities are degrading land, including groundwater resources.
- **Meat consumption:** IPCC report 'Climate Change and Land' emphasises the ever-increasing global meat consumption and the resulting distorted land-use pattern to meet this requirement, as a cause contributing to climate change. The EAT-Lancet Commission report also supports this; it adds biodiversity loss, natural water depletion and carbon emission to the associated risks.
    - Creating pastures to feed cattle causes huge deforestation. Processing, preservation and packaging of cattle slaughtered is also highly GHG-generation intensive process.
    - Cattle itself is responsible for producing high quantities of methane, which has a far greater carbon footprint compared to carbon dioxide.
- **Disregard for ocean health:** Overfishing, plastic pollution, micro-plastics, flow of fertilisers and chemicals etc. is suffocating fish and damaging ocean health. More than 1 billion people depend on the oceans. Ocean health is vital to biodiversity, healthy fisheries and to regulate the climate.

24. Correct Option (c)

Explanation: Statement 1 and 3 are correct

- Statement 2 is incorrect: This launch carried customer satellites of United States, Japan, Italy, and Israel. 'Italy' not 'France'.

Supplementary Notes

- **IRISAT-2BR1** is a synthetic-aperture radar **(SAR) imaging satellite** for reconnaissance built by Indian Space Research Organisation**(ISRO).**
- It is part of India's RISAT series of SAR imaging space crafts and 4th satellite in the series.
- RISAT-2BR1 was launched in December 2019 aboard **PSLV-C48** from First Launch Pad of SatishDhawan Space Centre.
- It was the **50th launch of Polar Satellite Launch Vehicle (PSLV**) and 75th launch from SatishDhawan Space Centre.
- RISAT-2BR1 usage: Apart from being used for military purposes, RISAT-2BR1 has applications in fields such as agriculture and disaster management support.
- RISAT-2BR1 was launched with nine other ride-sharing commercial satellites.
- Nine commercial ridesharing satellites weighed 157.6 kg cumulatively. These customer satellites included six from United States, and one each from Japan, Italy and Israel.
- RISAT 2B, RISAT 2BR1 and RISAT 2BR2 (Radar Imaging Satellite) are **satellite imaging missions of ISRO** using an **active SAR** (Synthetic Aperture Radar) imager to provide continuity of service for RISAT-2.
- **Objective of the RISAT mission** is to use the all-weather and day-and-night SAR observation capability in applications such as agriculture, forestry, soil moisture, geology, sea ice, coastal monitoring, object identification, and flood monitoring, and also for military surveillance.
- Other significant PSLV launches: Chandrayaan-1, the Mars Orbiter Mission (MOM) and a record launch of 104 satellites in one go.

25. Correct Option (c)

Explanation: Statement 3 is correct

- Statements 1 and 2 are incorrect: Marengo sachintendulkar is a flat-bodied spider.

Supplementary Notes

- DhruvPrajapati, a junior researcher pursuing a PhD in spider taxonomy with **Gujarat Ecological Education & Research (GEER) Foundation**, recently discovered **two new species of spiders**.
- He has named one of the species as Marengo sachintendulkar after Indian crickterSachin Tendulkar and other as IndomarengoChavarapatera which is inspired by Saint Kuriakose Elias Chavara who was a campaigned towards creating awareness about education in Kerala.
- His discovery of **two flat-bodied spiders** has been included in World Spider Catalogue also.
- The two new species belong to Indomarengo genus and Marengo genus of Asian jumping spiders.
- Marengo sachintendulkar: It was found in Kerala, Tamil Nadu, and Gujarat.
- IndomarengoChavarapatera: It was **found in Kerala**.
- There are nearly **48,000 types of spiders** found worldwide, spread **across 120 families**.

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TEST
DAY - 37

Time Allowed: 30 mins **Maximum Marks: 50**

1. Which of the following are *not* the secondary pollutant?

1. SO_2
2. Ozone
3. NO_x
4. PANs

Select the correct option using the codes given below:

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 4 only

(d) 1, 2, and 3 only

2. Which of the following chemicals are primarily present in the fly ash?

(a) **SiO_2**

(b) CaO

(c) Al_2O_3

(d) All of the above

3. Which of the following statements is/ are *incorrect*?

1. The Comprehensive Environmental Pollution Index has been developed by the CPCB for the environmental assessment of Industrial Clusters only.
2. The areas where the pollution level is more than 70%, are categorized as severely polluted areas.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

4. Which of the correct statements regarding Zero Liquid Discharge is/ are correct?

1. It completely eliminates liquid discharge from the water system.
2. Removal of organic and suspended dissolved solids is not a prerequisite for this treatment of water.
3. Only a small amount of energy is needed for this process.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

5. Regarding the controlling measures of water pollution, consider the following statements:

1. Arsenic contamination can be removed by Coagulation.
2. To make the quality of water better, fluorides are either added or removed.
3. Colors of the water can be removed only by reduction.

Which of the above statements is/are correct?

(a) 3 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2, and 3

6. Which of the following statements regarding water pollution is/are correct?

1. Domestic waste and sewage is the biggest polluter of water sources in India.
2. Thermal pollution is one of the causes of water pollution.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

7. Which of the following are the effects of tropospheric ozone?

1. It interferes with photosynthesis.
2. It assists in the formation of Peroxyacetylnitrate (PAN).
3. It causes bronchitis.
4. It is toxic for soft tissues and bones.

Select the correct option using the codes given below:

(a) 2 only

(b) 2 and 4 only

(c) 1, 2, and 3 only

(d) 1, 2, 3, and 4

8. "Noise pollution is an unpleasant noise created by people or machines that can be annoying, distracting, intrusive, and/or physically painful". Which of the following is/are *not* the effects of noise pollution?

1. Excessive adrenalin in the bloodstream
2. Birth defects
3. Digestive irregularities
4. Decrease in the rate of color perception

Select the correct option using the codes given below:

(a) 1 only

(b) 3 only

(c) 2 and 4 only

(d) None of the above

9. Which of the following is/are included under the Bio-medical wastes?

1. Soiled wastes
2. Anatomical wastes
3. Waste sharps
4. Discarded medicines

Select the correct option using the codes given below:

(a) 1, 2, 3, and 4

(b) 2, 3 and 4 only

(c) 2 and 4 only

(d) 1 and 3 only

10. With reference to the new technologies for the treatment of bio-medical waste, consider the following statements:

1. In Plasma Pyrolysis, bio-medical waste is treated at high temperatures.
2. The disposal of the treated wastes is not needed in the Plasma Pyrolysis technology.
3. Waste Sharp Dry Heat Sterilization & Encapsulation' technology is also called autoclaving.
4. Shredding cum Chemical Disinfection is a non-burn technology.

Which of the above statements is/are incorrect?

(a) 1 and 3 only

(b) 2 and 4 only

(c) 1 and 4 only

(d) 2, 3 and 4 only

11. Identify the *incorrect* statement with respect to Biological Oxygen Demand (BOD):

(a) It is the measure of oxygen equivalent of the requirement of oxidation of total organic matter present in water.

(b) BOD is limited to biodegradable materials only.

(c) Chemical oxygen demand (COD) is a better mode to measure pollution load in water than BOD.

(d) All of the above statements are correct.

12. What do you understand by Radioactive Pollution?

(a) It is a phenomenon of spontaneous emission of short wave electromagnetic waves only.

(b) It is a phenomenon of spontaneous emission of proton, electrons and gamma rays only.

(c) It is a phenomenon of spontaneous emission of alpha and beta particles only.

(d) It is a phenomenon of spontaneous emission of alpha and beta particles and cosmic rays.

13. Identify an incorrect pair regarding the pollutants and their respective components:

(a) Gaseous pollutants: Oxides of carbon

(b) Particulate matter: Radioactive substances

(c) Burning of plastics: Poisonous gases like phosgene (COCl2)

(d) All of the above

14. Consider the following statements regarding Environmental Pollutants:

1. Peroxyacetyl nitrate (PAN), Dichlorodiphenyltrichloroethane (DDT) and Plastic are examples of secondary pollutants.
2. Qualitative Pollutants are man-made.
3. Glass, salts of heavy metals and radioactive substances are examples of Biodegradable Pollutants.

Which of the above statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

15. Consider the following statements about the Photochemical Smog:

1. It is a term used to describe air pollution that is a result of the interaction of sunlight with certain chemicals in the atmosphere.
2. During the winter it leads to a decrease in pollution levels.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

16. Which of the following statements is / are correct about the point source of water pollution?

1. Pollutant travels directly from source to water.
2. These sources are difficult to regulate.

Select the correct answer using code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

17. Which of the following statements correctly defines the Putrescibility?

(a) It is the process of decomposition of organic matter in water.

(b) It is a process in which hemoglobin reacts with non-functional methaemoglobin and impairs oxygen transport.

(c) It is a process in which water is purified by extracting toxic materials and heavy metals.

(d) It is a process of treatment of sewage water.

18. With reference to the effects of water pollution, which of the following statements is *incorrect?*

(a) Water contaminated with cadmium can cause itai-itai.

(b) Excess fluoride in drinking water causes skeletal fluorosis.

(c) Hot waters discharged from industries when added to water bodies, increases its Dissolved Oxygen (DO) content.

(d) The presence of excess nitrate in drinking water causes blue-baby syndrome.

19. Which among the following pair is *incorrectly* matched?

(a) Phytoextraction: Use of microorganisms to degrade the environmental contaminants into less toxic forms.

(b) Phytodegradation: Uptake of organic contaminants from soil and their transformation to less toxic forms.

(c) Phytostabilization: It is a technique in which plants reduce the mobility and migration of contaminated soil.

(d) Rhizodegradation: It is the breakdown of contaminants through the activity existing in the rhizosphere.

20. Which of the following are man-made sources of radioactive pollution?

1. Terrestrial radiations from radio-nuclides present in earth's crust
2. Uranium mining
3. Radiation therapy
4. Transportation of nuclear material

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 1, 2 and 3 only

(c) 2 and 4 only

(d) 2, 3 and 4 only

21. Recently Breast Milk Banks are been established in the country, consider the following statements regarding it

1. They are been established under Ministry of women and child development.
2. Breast Milk Contains Important Antibodies.
3. Breastfeeding May Prevent Menstruation.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 3 only

(d) 1, 2 and 3

22. NITI Aayog recently drafted a roadmap for achieving population stabilisation, with reference to that consider the following statements

1. It recommended to Increase budgetary allocations for family planning
2. Treating population stabilisation and family planning as a national priority is one of its outcome
3. India currently has the second largest population in the world.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

23. Recently, many developments have been made in the field of bio-printing. Which of the following is not a limitation of 3D bio-printing?

1. The abundant and branched nature of the vasculature is difficult to reproduce
2. Risk of immune rejection
3. Accurately printing tissues on the micro-scale

Choose the correct answer:

(a) 1 only

(b) 1 and 2 only

(c) 3 only

(d) 1, 2 and 3

24. Match the following pairs correctly:

1. Hydrogen based cars	A. They use energy stored in batteries to power one or more electric motors.
2. Electric cars	B. They burn fuel in an internal combustion engine.
3. Conventional Cars	C. They create the electricity in an onboard fuel cell, usually using oxygen from the air and stored hydrogen.

(a) 1–A, 2-B, 3-C

(b) 1-C, 2-A, 3-B

(c) 1-B, 2-C, 3-A

(d) 1-C, 2-B, 3-A

25. Which of the following is/are the objectives of National Electronics Policy (NEP), 2019?

1. To position India as a global hub for Electronics System Design and Manufacturing (ESDM) by creating an enabling environment for the industry to compete globally.
2. Promote domestic manufacturing in the entire value-chain of ESDM, including core components and materials to increase the domestic value addition and reduce dependence on import of electronic goods by focusing on scale, skill and technology.

Which of the following statement(s) given above is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither one nor two

****

ANSWER HINTS

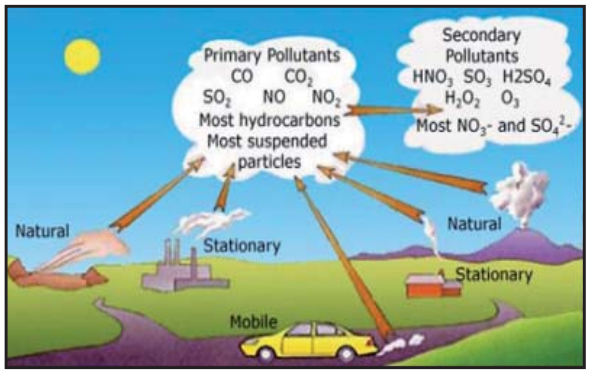
DAY - 37

1. Correct Option: (b)

Explanation:

Primary pollutant

- A **primary pollutant** is a pollutant emitted directly from a source. It persists in the form in which they are added to the environment. **Example-CO, CO_2, SO_2, Oxide of nitrogen (NO_x), Particulate matter, etc.**



- Secondary Pollutants are formed by interaction among the primary pollutants. They are more toxic. **Example- Smog, Tropospheric Ozone, Peroxy Acetyl Nitrates, etc.**

2. Correct Option: (d)

Explanation:

Fly Ash

- Fly ash is the finely divided residue that results from the combustion of pulverized coal and is transported from the combustion chamber by exhaust gases.
- It is produced from the combustion of coal in electric utility or industrial boilers, produced by coal-fired electric and steam generating plants.
- **It consists primarily of oxides of silicon, aluminum, iron, and calcium.**
- Magnesium, potassium, sodium, titanium, and sulfur are also present to a lesser degree.

3. Correct Option: (b)

Explanation:

Comprehensive Environmental Pollution Index (CEPI)

- The Central Pollution Control Board (CPCB) has developed a Comprehensive Environmental Pollution Index (CEPI). CPCB has done a **nationwide environmental assessment of Industrial Clusters** based on CEPI.
- The index captures the various health dimensions of the environment including air, water and land.
- Out of identified 88 prominent industrial clusters, 43 industrial clusters in 16 States having **a CEPI score of 70 and above were identified as Critically Polluted areas**, while industrial clusters **with CEPI scores between 60 & 70 are categorized as severely polluted areas.**

4. Correct Option: (a)

Explanation:

Zero Liquid Discharge (ZLD)

- **Zero liquid discharge (ZLD) is a wastewater treatment that completely eliminates liquid discharge from a system.** ZLD represents the ultimate cutting-edge treatment system for the total elimination of wastewater effluent into neighboring waterways. The goal of any well-designed ZLD system is to minimize the volume of wastewater that requires further treatment, process wastewater in an economically feasible manner, while also producing a clean stream suitable for re-use elsewhere in the facility.

- The first step to achieve ZLD is to look for ways to limit the amount of wastewater that needs to be treated. The equipments needed to achieve ZLD varies depending on the characteristics of the wastewater as well as the wastewater volume. Typical waste streams in an industrial setting include wastewater rejects typically from reverse osmosis (RO) or ion exchange, cooling tower blowdown, spent coolants, DI regenerant, metal finishing wastewaters, tank or equipment washing wastewaters, and other miscellaneous industrial wastewaters such as compressor condensate and floor scrubber wash waters. A traditional approach to ZLD is to use some sort of filtration technology, funnel the reject waters to an evaporator, and send the evaporator concentrate to a crystallizer or spray dryer.

Advantages:

- Better management of wastewater.
- Less environmental pollution.
- Treatment and recovery of valuable products from waste streams.
- It avoids wastage and spurs recycling by conventional and far less expensive solutions.

Disadvantages:

- **Removal of organic and suspended dissolved solids is a prerequisite.**
- **High amount of energy utilization for the evaporation process.**
- Management of solid waste needs consideration due to its potentially hazardous nature.
- Capital cost is high.

5. Correct Option: (b)

Explanation:

Controlling measures of water pollution

- The various methods or the techniques which may be adopted for purifying the public water supplies are:
  - Screening
  - Plain sedimentation
  - Sedimentation aided with coagulation
  - Filtration
  - Disinfection
  - Softening
  - Miscellaneous treatments.

Miscellaneous treatments

Removal of colors, odors, and taste from water

- The special treatments for the removal of colors, odors, and tastes are
  - Aeration – application of oxygen (O2)
  - Activated carbon treatment (reduction) – Specially treated carbon which possesses the property of absorbing and attracting impurities, such as gases, liquids, and finely dissolved solids.
  - Treatment with copper sulfate ($CuSO4 \cdot 7H2O$) – It helps in removing colors, tastes, and odors from water.
  - Treatment with oxidizing agents – Oxidizing agents used are KMnO4, Cl2, O3, etc.

Removal of salt and dissolved solids from water i.e. Desalination

- The process of removing the salt content is known as desalination. The various methods used are
  - By evaporation and distillation
  - Electrodialysis method
  - Reverse osmosis method
  - Freezing process
  - Solar distillation method
  - Other methods

Removal of iron (Fe) and manganese (Mn) from water

- The Fe and Mn may be present in water either in combination with organic matter or without such combination. When present without combination with organic matter, they can be easily removed by aeration, followed by coagulation, sedimentation, and filtration. On the other hand, when Fe and Mn are present in combination with organic matter, removal becomes difficult. In such cases, the addition of lime, Cl2, or KMnO4 is useful.

Addition to and removal of fluorides from water

- **Fluoride (F^-) content in water should be about 1 mg/L. To ensure this, fluorides are either added in water (i.e. Fluoridation) or removed from this (i.e. Defluoridation).**

Arsenic contamination and its removal

- The maximum permissible limit of

Arsenic (As) specified by the World Health Organization (WHO) as well as the Bureau of Indian Standards (BIS) is 0.01 mg/L (10 ppb). If there is excess concentration of As in water, then it needs to be removed using any one of the following methods:

- **Coagulation** – precipitation technique by using aluminum and ferric salts
- Adsorption technique by using activated alumina or ion exchange resins
- Membrane technology like reverse osmosis and electrodialysis

6. Correct Option: (c)

Explanation:

Water pollution

- Domestic waste and sewage is the biggest polluter of surface and groundwater sources in India. This is due to the big lacuna between the amount of sewage generation and the facilities to dispose it off. The problem is not only the lack of facilities; rather, the non-functioning of existing facilities/treatment plants is more critical.

Thermal pollution

- Temperature above the normal range is called thermal pollution or Calefaction. Thermal pollution occurs as a result of the entry of heated water from industries and power generation plants. Various processes involved in generating thermal pollution are
  - Water for cooling condensers
  - Feeding boilers for steam generation
  - Auxillary plant cooling
  - Ash handling
  - Gas washing, etc.
- The immediate effect of an increase in temperature is a decrease in the oxygen concentration. A temperature rise of 10°C will double the rate of many chemical reactions and so the decay of the organic matter, rusting of iron, and the solution rate of salts are also accelerated by calefaction. All organisms have a range of temperature tolerance beyond which they either die or move to more congenial conditions downstream.

7. Correct Option: (c)

Explanation:

Effects of air pollutants

- The effects of various pollutants can be understood in terms of health aspects and environmental aspects. The effects are summarized in the following table:

Pollutants	Major effects	
	Health effects	Environmental effects
Sulfur oxides (SOx)	Respiratory problems, Heart and lung disorders, Visual impairment	Acid rain
Nitrogen oxides (NOx)	Pulmonary disorders increased susceptibility to respiratory infections	Precursor of ozone formation in the troposphere, Aerosol formation
Particulate matter (PM)	Respiratory problems, liver fibrosis, lung/ liver cancer, Heart stroke, Bone problems	Visibility reduction
Carbon monoxide (CO)	Anoxemia leading to various cardiovascular problems. Infants, pregnant women, and elderly people are at higher risk	-

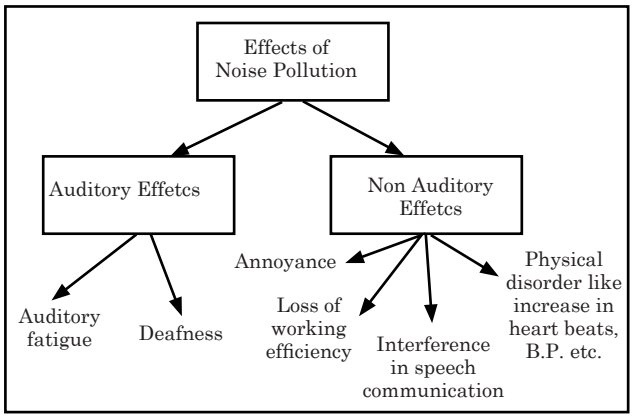
Ozone (O3)	Respiratory problems, Asthma, bronchitis, etc.	O3 in upper troposphere causes greenhouse effects, Harmful effects on plants as it interferes in photosynthesis and results in the death of plant tissues since it assists in the formation of Peroxyacety-lnitrate (PAN)
Lead (Pb)	Serious effects on the central nervous system since it is absorbed rapidly in bloodstream, Anemia**, toxic for soft tissues and bones**	-
Ammonia (NH3)	Immediate effects lead to the burning of eyes, nose, throat, and respiratory tract. Prolonged effects result in blindness, lung damage, or death.	-

8. Correct Option: (d)

Explanation:

Effects of noise pollution

- Problems caused by noise pollution include stress-related illnesses, speech interference, hearing loss, sleep disruption, and lost productivity. The hazards are summarized below:



- Noise pollution affects both human and animal health. It leads to:
  - **contraction of blood vessels**,
  - making skin pale,
  - Excessive adrenalin in the bloodstream which is responsible for high blood pressure,
  - Blaring sounds are known to cause mental distress,
  - Heart attacks, neurological problems, **birth defects**, and abortion.
- Muscle contraction leading to a nervous breakdown, tension, etc.
- The adverse reactions are coupled with a change in hormone content of blood, which in-turn increases heartbeat, constriction of blood vessels, digestive spasms, and dilation of the pupil of the eye.
- Adversely affects health, work efficiency, and behavior. Noise pollution may cause damage to the heart, brain, kidneys, liver, and may produce emotional disturbance.
- The most immediate and acute effect of noise is the impairment of hearing that diminishes some part of the auditory system. The eardrum is damaged when exposed to very loud and sudden noises. The hair cells in the inner ear are chronically damaged. Prolonged exposure to noise of certain frequency patterns leads to chronic damage to the inner ear and leads to hearing loss.
- Impulsive noise may cause psychological and pathological disorders.
- **Ultrasonic sound can affect the digestive, respiratory, cardiovascular system, and semi-circular canals of the internal ear.**
- The brain is adversely affected by loud and sudden noise by jets and airplanes. People are subjected to psychiatric illness.
- Recent reports suggest that blood is thickened by excessive noise. Eosinophilia, hyperglycemia, hypokalaemia, and hypoglycemia are caused by alteration in the blood due to noise.
- The optical system of human beings is also affected by noise pollution. Severe noise pollution causes:
  - Pupillary dilation
  - Impairment of night vision and
  - **Decrease in the rate of color perception.**

9. Correct Option: (a)

Explanation:

Bio-medical waste

- According to Biomedical Waste (Management and Handling) Rules, 1998 of

India "Any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological".

- The bio-medical waste consists of
  - **Human anatomical waste** like tissues, organs and body parts
  - Animal wastes generated during research from veterinary hospitals
  - Microbiology and biotechnology wastes from laboratory, culture stocks or specimens of micro-organisms, live or attenuated vaccines, human and animal cell culture used in research
  - **Waste sharps like hypodermic needles, syringes, scalpels, and broken glass**
  - **Discarded medicines and cytotoxic drugs** comprising of outdated, contaminated and discarded medicines
  - **Soiled waste such as cotton balls** used while blood collection or used as absorbent material for accidental blood and body fluid spillage
  - Solid waste such as dressing, bandages, plaster casts, material contaminated with blood, tubes, and catheters
  - Liquid waste from any of the infected areas
  - Incineration ash from incineration of any bio-medical waste
  - Chemical wastes generated while testing and analysis.

10. Correct Option: (a)

Explanation:

New technologies for the treatment of bio-medical waste

- CPCB has granted conditional or provisional approval to new Technologies (other than notified under BMW Rules) for treatment of bio-medical waste, under the BMW Rules as under:
  - Plasma Pyrolysis;
  - Waste Sharps Dry heat sterilization and encapsulation
  - Shredding cum Chemical disinfection (Static/Mobile)

Plasma Pyrolysis Technology

- **In this, bio-medical waste is treated at high temperatures** under controlled conditions to form gases like methane, hydrogen and carbon monoxide which are subjected to combustion (oxidation) in the secondary chamber.
- **In this process, waste is converted into small clinker which can be disposed of in secured landfills.**

Waste Sharp Dry Heat Sterilization & Encapsulation' technology

- It is based on **'dry heat sterilization'**, **contrary to the autoclaving where the high-pressure steam is used**, especially for the treatment of waste category no. 04 (i.e. waste sharps) as listed under Schedule-I of the BMW Rules, 1998. Approval to this technology is accorded by CPCB under the Bio-medical Waste (Management & Handling) Rules, 1998 as amended subject to the conditions. Dry Heat Sterilization & Encapsulation of Waste Sharps treatment equipment and the canister before used for the collection of waste sharps and the canister after treatment.

Shredding cum Chemical Disinfection of Bio-medical Waste

- This technology is based on 'shredding followed by chemical disinfection' of biomedical waste. Provisional approval of this technology is accorded by CPCB for the treatment of bio-medical waste on a trial basis for the evaluation / efficacy of the technology. **This is a non-burn technology**, **in which bio-medical waste is shredded** and sterilized so as to make it suitable for disposal along with municipal solid waste.

11. Correct Option: (a)

Explanation:

Biological Oxygen Demand (BOD)

- **Water pollution by organic wastes is measured in terms of Biochemical Oxygen Demand (BOD).**

- Biological Oxygen Demand is the amount of dissolved oxygen needed by bacteria in decomposing the organic wastes present in water.
- **It is expressed in milligrams of oxygen per litre of water.**
- **The higher value of BOD indicates low Dissolved Oxygen content of water.**
- BOD is limited to biodegradable materials only, **hence it is not considered a much reliable method of measuring pollution load in the water.**
- Chemical oxygen demand (COD) is a slightly better mode used to measure pollution load in the water. **COD is the measure of oxygen equivalent to the requirement of oxidation of total organic matter (i.e. biodegradable and non-biodegradable) present in water.**

12. Correct Option: (b)

Explanation:

Radioactive Pollution

- Radioactivity is a phenomenon of spontaneous emission of proton (a-particles), electrons (ß-particles) and gamma rays (short wave electromagnetic waves) **due to the disintegration of atomic nuclei of some elements. These cause radioactive pollution.**
- **Alpha particles can be blocked by a piece of paper and human skin.**
- **Beta particles can penetrate through the skin, while can be blocked by some pieces of glass and metal.**
- **Gamma rays can penetrate easily to human skin and damage cells on its way through, reaching far, and can only be blocked by a very thick, strong, massive piece of concrete.**

13. Correct Option: (c)

Explanation:

Pollution by agrochemicals

- **Increased use of synthetic fertilizers causes serious environmental problems. For example, unused fertilizers from agricultural fields are carried away by runoff waters into lakes and rivers causing pollution.**
- **These agrochemicals may even seep through the soil and pollute groundwater. Excessive nutrients enrichment of water bodies leads to 'eutrophication' (i.e. enrichment of water with nutrients particularly nitrates and phosphates triggers the explosive growth of green algae) that may take place in water bodies and kill aquatic life.**
- **The use of pesticides not only kills pests that destroy crops but may also kill many non-pest organisms which may include even useful species of insects such as pollinators, birds, and helpers in the dispersal of plant seeds. Pesticides tend to accumulate and their concentration increases through the food chain and reaches toxic levels in eggs, milk and other food items (biomagnification).**
- **All these industries discharge several waste gases and particulate pollutants into the atmosphere. Some of them are as follows:-**
  - Gaseous pollutants: Oxides of carbon, nitrogen, and sulphur.
  - Particulate matter: Fine metal dust, fly ash, soot, cotton dust, and radioactive substances.
  - Burning of plastics: Emit polychlorinated biphenyls (PCBs) which are harmful to lungs and vision.
  - Accidental release of some poisonous gases like phosgene (COCl2) and methyl isocyanate (as it happened in Bhopal) is fatal.
  - Secondary air pollutants formed from complex reactions between primary pollutants, such as smog and acid rain, which are harmful to all living organisms, buildings, and monuments.

14. Correct Option: (b)

Explanation:

Classifications of Pollutants

- According to the form in which they persist after release into the environment:
  - **Primary Pollutants: These persist in the form in which they are added to the environment e.g. DDT, plastic.**
  - **Secondary Pollutants: These are formed by interaction among the primary pollutants. For example, peroxyacetyl nitrate (PAN) is formed by the interaction of nitrogen oxides and hydrocarbons.**

- According to their existence in nature:
  - Quantitative Pollutants: These occur in nature and become pollutants when their concentration reaches beyond a threshold level. E.g. carbon dioxide, nitrogen oxide.
  - **Qualitative Pollutants: These do not occur in nature and are man-made. E.g. fungicides, herbicides, DDT, etc.**
- According to their nature of disposal:
  - Biodegradable Pollutants: Waste products, which are degraded by microbial action. E.g. sewage.
  - **Non-biodegradable Pollutants: Pollutants, which are not decomposed by microbial action. E.g. plastics, glass, DDT, salts of heavy metals, radioactive substances, etc.**
- According to their origin:
  - Natural: E.g. carbon dioxide, nitrogen oxide
  - Anthropogenic: E.g. fungicides, herbicides, DDT, etc.

15. Correct Option: (a)

Explanation:

Photochemical Smog

- Photochemical smog (smog) is a term used to describe air pollution that is a result of the interaction of sunlight with certain chemicals in the atmosphere**.**
- **Its occurrences are often linked to heavy traffic, high temperatures, and calm winds.**
- During the winter, wind speeds are low and cause the smoke and fog to stagnate near the ground; hence pollution levels can increase near ground level.
- **Smoke particles trapped in the fog gives it a yellow/ black color and this smog often settled over cities for many days.**

16. Correct Option: (a)

Explanation:

Water Pollution - Types of sources

- Point Sources
- **Diffuse or non-point source**

Point Sources

- **It is directly attributable to one influence.**
- Here pollutant travels directly from source to water.
- Point sources are easy to regulate.

17. Correct Option: (a)

Explanation:

Putrescibility

- **It is the process of** decomposition of organic matter present in water by microorganisms using oxygen.

18. Correct Option: (c)

Explanation:

Effects of Water Pollution

- **Effects on aquatic ecosystem**
  - **Polluted water reduces Dissolved Oxygen (DO) content, thereby, eliminates sensitive organisms like plankton, molluscs, and fish, etc.**
  - **Biocides, polychlorinated biphenyls (PCBs) and heavy metals directly eliminate sensitive aquatic organisms.**
  - Hot waters discharged from industries, when added to water bodies, lowers its DO content.
- **Effects on human health:**
  - **The polluted water usually contains pathogens like viruses, bacteria, parasitic protozoa, and worms, therefore, it is a source of water-borne diseases like jaundice, cholera, typhoid, amoebiasis, etc.**
  - **Mercury compounds in wastewater are converted by bacterial action into extremely toxic methyl mercury, which can cause numbness of limbs, lips and tongue, deafness, blurring of vision and mental derangement.**
  - Water contaminated with cadmium can cause itai itai disease also called ouch-ouch disease **(a painful disease of bones and joints) and cancer of lungs and liver.**
  - **The compounds of lead cause anemia, headache, loss of muscle power and bluish line around the gum.**

- **Hazards of groundwater pollution:**
  - **Excess nitrate in drinking water reacts with hemoglobin to form non-functional methaemoglobin and impairs oxygen transport. This condition is called** methaemoglobinemia or blue baby syndrome.
  - Excess fluoride in drinking water causes neuro-muscular disorders, gastro-intestinal problems, teeth deformity, hardening of bones and stiff and painful joints (skeletal fluorosis).
  - **Overexploitation of groundwater may lead to leaching of arsenic from soil and rock sources and contaminate groundwater. Chronic exposure to arsenic causes black foot disease. It also causes diarrhoea, peripheral neuritis, hyperkerotosis and also lung and skin cancer.**
- **Biological Magnification**
- **Eutrophication.**

19. Correct Option: (a)

Explanation:

Genetic engineering approaches

Phytoremediation

- Phytoremediation is the use of plants to remove contaminants from soil and water.

Types

- **Phytoextraction / phytoaccumulation is the process by which plants accumulate contaminants into the roots and above-ground shoots or leaves.**
- **Phytotransformation or phytodegradation refers to the uptake of organic contaminants from soil, sediments, or water and their transformation to a more stable, less toxic, less mobile form.**
- **Phytostabilization is a technique in which plants reduce the mobility and migration of contaminated soil.** Leachable constituents are adsorbed and bound into the plant structure so that they form an unstable mass of plant from which the contaminants will not re-enter the environment.
- **Phytodegradation or rhizodegradation is the breakdown of contaminants through the activity existing in the rhizosphere.** This activity is due to the presence of proteins and enzymes produced by the plants or by soil organisms such as bacteria, yeast, and fungi.
- **Rhizofiltration** is a water remediation technique that involves the uptake of contaminants by plant roots. Rhizofiltration is used to reduce contamination in natural wetlands and estuary areas.

20. Correct Option: (d)

Explanation:

Radioactive Pollution

- **Radioactivity is a phenomenon of spontaneous emission of proton (a-particles), electrons (ß-particles) and gamma rays (short wave electromagnetic waves) due to the disintegration of atomic nuclei of some elements. These cause radioactive pollution.**
- Sources
  - Natural
    - **They include cosmic rays from space and** terrestrial radiations from radio-nuclides present in earth's crust such as radium-224, uranium-238, thorium-232, potassium- 40, carbon-14, etc
  - Man-made
    - **Nuclear power plants**
    - **Nuclear weapon**
    - Transportation of nuclear material
    - **Disposal of nuclear waste**
    - Uranium mining
    - Radiation therapy

21. Correct option: (b)

Explanation

- **Statement 1 is incorrect: Breast Milk Banks are established under "National Guidelines on Establishment of Lactation Management Centres in Public Health Facilities" by the Ministry of Health and Family Welfare.**

Breast Milk Banks

- **Breast Milk Banks are established under "National Guidelines on Establishment of Lactation Management Centres in Public Health**

Facilities" by the Ministry of Health and Family Welfare.

- **It is established for the purpose of collecting, screening, processing, storing and distributing donor human milk at Government Medical Colleges or District Hospitals with high delivery load and availability of newborn treatment units.**
- **It has a collection and storage facility of mother's own milk in District Hospital/Sub-district Hospital with at least 12 beds.**
- **These are established at all delivery points to provide breastfeeding support, lactation counselling and Kangaroo Mother Care (KMC) support to mothers.**
- **The first Breast Milk Bank of India was established in 1989 at Mumbai.**
- **MAA - "Mothers Absolute Affection" is a nationwide programme of the Ministry of Health and Family Welfare to promote breastfeeding.**

Importance of Breast Milk

- **Breast milk is the optimum source of nutrition for the first six months of life of an infant.**
- **It prevents infections like diarrhoea and acute respiratory infections in early infancy and thus reduces infant mortality.**
- **It decreases the risk of mothers developing breast cancer, ovarian cancer, type 2 diabetes, and heart disease.**
- **Breast Milk Contains Important Antibodies.**
- **Breast Milk Promotes a Healthy Weight.**
- **Breastfeeding May Make Children Smarter.**
- **Breastfeeding May Help You Lose Weight.**
- **Breastfeeding Helps the Uterus Contract.**
- **Mothers Who Breastfeed Have a Lower Risk of Depression.**
- **Breastfeeding May Prevent Menstruation.**

22. Correct option: (d)

Explanation

- NITI Aayog to draft roadmap for achieving population stabilisation
- **The NITI Aayog is going to draft a roadmap for achieving population stabilisation in collaboration with the Population Foundation of India (PFI).**
- **It is organising a National Consultation titled *"Realizing the vision of population stabilization: leaving no one behind".***

About the Draft-

- **The working paper is expected to address key gaps in India's family planning programmes. India, with a current population size of 1.37 billion, has the second largest population in the world.**
- **It will offer constructive recommendations to address regional disparities in outcomes by focusing on adolescents and youths, inter-departmental convergence, demand generation, access to contraceptive services and quality of care.**
- **The Aayog said that India is at a stage where birth rates are falling but the population continues to grow due to the fact that more than 30 per cent of the population is young and in the reproductive age group.**

23. Correct Option (c)

Explanation: Statements 1 and 2 are correct

- Statement 3 is incorrect: While bio-printed organs are still far from accurate development, tissues have successfully been printed on micro-scale.

3D bio-printing

- **Bio-printing is an additive manufacturing process where biomaterials such as cells and growth factors are combined to create tissue-like structures that imitate natural tissues.**
  - **Bio-ink is used to create these structures in a layer-by-layer manner.**
- **Bio-ink: Bio-ink is a combination of living cells and a compatible base, like collagen, elastin, gelatin, hyaluronan, silk, alginate or nanocellulose.**
- **But the process can essentially be summarized into three key steps:**
  - **Pre bio-printing involves creating the digital model that the printer will produce. The technologies**

used are computed tomography (CT) and magnetic resonance imaging (MRI) scans.

- **Bio-printing is the actual printing process, where bio-ink is placed in a printer cartridge and deposition takes place based on the digital model.**
- **Post bio-printing is the mechanical and chemical stimulation of printed parts so as to create stable structures for the biological material.**

- **Application:**
  - **Medicine and Bio-engineering: Advancements in the production of cartilage tissue for use in reconstruction and regeneration.**
  - **The process has potential to eradicate in future the need of organ donation and transplantation. Treatment for diseases can be tested using artificially affected tissues.**
  - **Bone tissue regeneration as well as prosthetics and dental applications.**
  - **Pharmaceutical testing and reduced need for animal trials.**
  - **Cosmetic surgery**
- **Limitation:**
  - **The vasculature still has to be developed to allow lab skin to integrate with the human body's blood vessels.**
  - **Stem cell engineering hasn't yet evolved to grow all cells of an organ in a personalized way to avoid rejection by recipient's immune.**
  - **Current not evolved to ensure that a lab organ works well with all other human organs.**

24. Correct Answer: (b)

Explanatory Notes: Option (b) is correct.

- Electric Vehicles V. Hydrogen Vehicles

25. Correct Option: (c)

Explanation:

- Statement 1 & 2 are correct:

Supplementary Notes

- **National Electronics Policy (NEP) is launched in 2019 and replaced the earlier National Electronics Policy, 2012.**
- **It aims at making India a global hub for Electronics System Design and Manufacturing (ESDM) by creating an enabling environment for the industry to compete globally.**
- **It promotes domestic manufacturing in the entire value-chain of ESDM, including core components and materials to increase the domestic value addition and reduce dependence on import of electronic goods by focusing on scale, skill and technology.**
- **NEP 2019 primarily targets increasing the electronic goods exports. The rising trend has been seen in electronics exports amid slowdown in Indian economy. The total value of production of electronic goods has increased from $31.2 billion in FY15 to $65.5 billion in FY19. Electronics exports are led by mobile phones.**
- **India has become the 2nd largest producer of mobile phones, replacing Vietnam.**
- **India started to become an alternate production destination because of: 1). Pull Factors include potential domestic demand and government policies to boost electronic exports. 2). Push Factors include trade tensions between the US and China. This is expected that the positive trend in India's electronic exports to continue.**

****

TEST
DAY - 38

1. Which of the following pairs regarding environmental schemes and their launching years are correctly matched?

1. National Action Plan on Climate Change: 2008
2. Climate Change Action Programme: 2018
3. National Adaptation Fund on Climate Change: 2015
4. National Clean Air Programme: 2019

Select the correct answer from the code given below the lists:

(a) 1 and 2 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2, 3 and 4

2. Which of the following pairs regarding environmental laws is incorrectly matched?

(a) Environment Protection Act: 1986
(b) Water (Prevention and Control of Pollution) Cess Act: 1974
(c) Air (Prevention and Control of Pollution) Act: 1981
(d) Public Liability Insurance Act, 1991

3. Which of the following pairs regarding projects for the conservation of species is correctly matched?

1. Project Tiger: 1973
2. Project Snow leopard: 1999
3. Project Crocodile: 1995
4. Project elephant: 1992

Select the correct option using the codes given below:

(a) 1 and 4 only
(b) 2 and 3 only
(c) 1, 2, and 4 only
(d) 1, 3, and 4 only

4. Which of the following statements is/ are correct?

1. Operation Save Kurma is specific to the turtles only.
2. Operation Thunderbird is specific to the Great Indian Bustard only.

Select the correct option using the codes given below:

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

5. Arrange the following policies/plans in the chronological order:

1. National Environmental Policy
2. National Agroforestry Policy
3. National Forest Policy
4. National Biodiversity Action Plan

Select the correct option using the codes given below:

(a) 2-3-4-1
(b) 3-1-2-4
(c) 3-1-4-2
(d) 4-2-1-3

6. Dr. Shailesh Nayak Committee is related to____

(a) The Himalayan ecosystem
(b) Western Ghats ecosystem regulations
(c) Coastal Regulation Zone
(d) Reintroduction of cheetahs in India

7. Which of the following statements regarding the Wildlife Crime Control Bureau is/are correct?

1. Wildlife Crime Control Bureau (WCCB) is a statutory body.
2. It was constituted by amending the Environment Protection Act, 1986.
3. The Bureau has its headquarter in Chennai.

Select the correct option using the codes given below:

(a) 1 only
(b) 2 only
(c) 1 and 2 only
(d) 2 and 3 only

8. Consider the following statements:

1. State Governments cannot declare any wild animal a vermin.
2. The Vermins are included in the Schedule-VI of the Wildlife (Protection) Act, 1972.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

9. Consider the following statements regarding "National Citrus Gene Sanctuary":

1. It is the world's first citrus gene sanctuary.
2. It is situated in Nasik, Maharashtra.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

10. Which of the following pairs are correctly matched?

1. International day on Biodiversity: 22 May
2. World Environment Day: 8 June
3. Earth Day: 22 March
4. World Wetlands Day: 2 February

Select the correct option from the code given below the lists:

(a) 1 and 4 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) 3 and 4 only

11. Match the following lists:

State butterflies	***States***
A. Blue Mormon	Karnataka
B. Common peacock	Uttarakhand
C. Sahyadri Birdwing	Maharashtra
D. Papilio buddha	Kerala

Select the correct option from the code given below the lists:

	A	B	C	D
(a)	1	2	4	3
(b)	3	2	1	4
(c)	4	1	3	2
(d)	3	4	1	2

12. Consider the following statements:

1. Recently, India has decided to reintroduce the Asian Cheetah from Iran.
2. It will be introduced in the Jim Corbett National Park.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

13. Which of the following activities are permitted in a Coastal Regulated Zone (CRZ)?

1. Sand and Rock mining
2. Creation of Storm Water Drains
3. Atomic Energy projects
4. Land-filling
5. Conveying systems and pipelines

Select the correct answer using the code given below:

(a) 1, 2 and 4 only

(b) 2 and 4 only

(c) 2, 3 and 5 only

(d) 1, 2, 3, 4 and 5

14. Which of the following statements regarding the Air (Prevention and Control of Pollution) Act, 1981 is/are correct?

1. The Act makes provisions for the establishment of the Central Pollution Control Board (CPCB).
2. The act doesn't cover noise pollution.
3. The act says that no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area.

Select the correct answer using the code given below:

(a) 3 only

(b) 1 and 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

15. With reference to the Forest Rights Act (FRA), consider the following statements:

1. The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal agency to implement this act.
2. The act provides for diversion of forest land for public utility facilities managed by the Government.
3. It concerns the rights of forest-dwelling communities to land and other resources.

Which of the above statements is/are ***incorrect?***

(a) 1 only

(b) 3 only

(c) 1 and 2 only

(d) 2 and 3 only

16. Consider the following statements with respect to Environmental Impact Assessment:

1. It is a process of evaluating the likely environmental impacts of a proposed project or development.
2. It takes into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
3. It is a tool used to identify the environmental, social and economic impacts of a project prior to decision-making.
4. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts.

Which of the above statements are correct?

(a) 1, 3 and 4 only

(b) 1 and 4 only

(c) 2 and 3 only

(d) 1, 2, 3 and 4

17. With reference to PARIVESH, consider the following statements:

1. It is an environmental single window hub for Environment, Forest, Wildlife and CRZ clearances.
2. It is a workflow-based application, based on the concept of web architecture.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

18. Which of the following is/are the key features of the National Ganga River Basin Authority (NGRBA)?

1. The Ministry of Water Resources, River Development and Ganga Rejuvenation (MoWR, RD & GR) is the nodal Ministry for the NGRBA.
2. One of the Chief Ministers of the States through which the Ganga flows becomes the Chairman of NGRBA on a rotation basis.

Select the correct option using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

19. With reference to the Environment Pollution Control Authority (EPCA), consider the following statements:

1. EPCA is a supreme court mandated non-statutory body.
2. The Minister of Environment & Forests (MoEF) holds the chairmanship of EPCA.
3. It has the power to take suo-moto cognizance of matters related to environmental pollution.

Which of the above statements are ***incorrect?***

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

20. Consider the following statements:

1. The World Wide Fund for Nature (WWF) is an international governmental organization.
2. The living planet report is published every three years by the World Wide Fund for Nature (WWF).
3. World Wide Fund for Nature is working for the reduction of humanity's footprint on the environment.

Which of the above statements is/are correct?

(a) 3 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

21. Recently, USA exited from Joint Comprehensive Plan of Action (JCPOA). Which of the following statements are correct about JCPOA?

1. JCPOA was an agreement reached between Iran and the UN Security Council in 2015.
2. Under JCPOA, EU refrains from re-introducing sanctions terminated under JCPOA.
3. JCPOA did not limit Iran's ballistic-missile development.

Choose the correct answer:

(a) Only 1

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

22. Which of the following statements regarding National intelligence Grid (NATGRID) is/are correct?

1. It is an attached office to Ministry of Home Affairs.
2. It is an integrated intelligence grid which will connect databases of core security agencies.
3. It was conceptualized in wake of Mumbai terror attacks in 2009.

Select the correct answer using the code given below:

(a) 1 and 3 only

(b) 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

23. Which of the following statements regarding National intelligence Grid (NATGRID) is/are correct?

1. It is an attached office to Ministry of Home Affairs.
2. It is an integrated intelligence grid which will connect databases of core security agencies.
3. It was conceptualized in wake of Mumbai terror attacks in 2009.

Select the correct answer using the code given below:

(a) 1 and 3 only

(b) 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

24. Consider the following statements about National Pharmaceutical Pricing Authority (NPPA) that was in news recently:

1. National Pharmaceutical Pricing Authority deals with the issue of affordability and availability of medicines.
2. Recently, National Pharmaceutical Pricing Authority (NPPA) has raised the ceiling prices of 21 essential medicines by 80%.

Which of the above statement(s) is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

25. Consider the following statements regarding The Draft National Statistical Commission Bill

1. The draft bill is aimed at empowering the National Statistical Commission (NSC) to become the nodal body for all core statistics in the country.
2. The Chairman and the members of the Commission shall be appointed by the President.

Which of the following statement is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

****

ANSWER HINTS

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1. Correct Option: (c)

Explanation:

Environmental schemes

- **National Action Plan on Climate Change (NAPCC)**, launched in **2008**, formulated in the backdrop of India's voluntary commitment to reduce emission intensity of its GDP by 20 to 25 percent by 2020 over 2005 levels. It was also meant to focus on key adaptation requirements and the creation of scientific knowledge and preparedness for dealing with climate change.
- **Climate Change Action Programme (CCAP),** a central sector scheme, has been launched in **2014** with the objective to build and support capacity at central and state levels, strengthening scientific and analytical capacity for climate change assessment, establishing an appropriate institutional framework and implementing climate-related actions in the context of sustainable development.
- **National Adaptation Fund on Climate Change** was established in 2015 to meet the cost of adaptation to climate change for the State and Union Territories that are particularly vulnerable to the adverse effects of climate change.
- **MoEF&CC has launched NCAP in 2019** as a pan India time-bound national-level strategy for prevention, control and abatement of air pollution besides augmenting the air quality monitoring network across the country.

2. Correct Option: (b)

Explanation:

Environmental laws in India

- The important Environmental Laws in the country are given below:
  - **Water (Prevention and Control of Pollution) Act, 1974.**
  - **Water (Prevention and Control of Pollution) Cess Act, 1977.**
  - Air (Prevention and Control of Pollution) Act, 1981
  - The Water (Prevention and Control of Pollution) Cess Act, 1977
  - Environment (Protection) Act, 1986 and Rules thereunder
  - Public Liability Insurance Act, 1991
  - National Green Tribunal Act, 2010

3. Correct Option: (a)

Explanation:

Conservation of species in India

- **Project Tiger** centrally sponsored scheme was launched in **1973**, supervised by National Tiger Conservation Authority.
- **Project Crocodile** was launched in **1975** with support from the United Nations Development Programme and the Food and Agriculture Organisation.
- **Project Elephant** was launched in February **1992** as a centrally sponsored scheme to assist states having free-ranging populations of wild elephants and to ensure long term survival of identified viable populations of elephants in their natural habitats.
- **Project Snow Leopard** was launched in **2009** to promote a knowledge-based and adaptive conservation framework that fully involves the local communities

4. Correct Option: (a)

Explanation:

Initiatives

- **Operation Thunderbird is the code-name of INTERPOL's (International Criminal Police Organization) multi-national and multi-species**

enforcement operation for wildlife protection. The operation brought about a unanimous approach by the state enforcement agencies in the fight against wildlife crime in the country.

- **Operation Save Kurma was a species-specific operation on turtles**. Under its total of 15,739 live turtles were recovered from 45 suspects, having inter-state linkages.

5. Correct Option: (c)

Explanation:

Environmental Polices

- **The principal aim of National Forest Policy, 1988** is to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which is vital for sustenance of all life forms, human, animal, and plant. The Draft National Forest Policy 2018 is now open for public comments and will replace the older 1988 policy once it comes into force.
- **India's National Environmental Policy (NEP) was adopted in 2006** and was built upon on the existing policies (e.g. National Forest Policy, 1988; National Conservation Strategy and Policy Statement on Environment and Development, 1992; and the Policy Statement on Abatement of Pollution,1992; National Agriculture Policy, 2000; National Population Policy, 2000; National Water Policy, 2002, etc).
- is a response to India's national commitment to a clean environment.
- Following India's adoption of the National Environment Policy (NEP) in 2006, a **National Biodiversity Action Plan (NBAP) was prepared in 2008.**
- **The National Agroforestry Policy, 2014** promotes tree plantation in complementarity with crops and livestock to improve productivity, employment, achieve efficient nutrient cycling and organic matter addition for sustainable agriculture, etc.

6. Correct Option: (c)

Explanation:

Shailesh Nayak Committee

- With the objective of conservation and protection of the coastal environment, the Ministry of Environment and Forest and Climate Change notified the Coastal Regulation Zone Notification in 1991, which was subsequently revised in 2011. The notification was amended from time to time based on representations received.
- A need was felt overtime to undertake a comprehensive revision of the notification on the basis of number of representations from the various Coastal States/UTs, besides other stakeholders particularly related to the management and conservation of marine and coastal ecosystems, development in coastal areas, eco-tourism, livelihood options and sustainable development of coastal communities, etc.
- Therefore, the Ministry of Environment, Forest & Climate Change constituted a Committee in June 2014 under the Chairmanship of **Dr. Shailesh Nayak** (Secretary, Ministry of Earth Sciences) to examine the various issues and concerns of Coastal States/UTs and other stakeholders for recommending appropriate changes in the **CRZ Notification, 2011**.
- The Committee submitted its recommendations in 2015.

7. Correct Option: (b)

Explanation:

Wildlife Crime Control Bureau (WCCB)

- Wildlife Crime Control Bureau is a statutory multi-disciplinary body established in 2007, by the Government of India under the Ministry of Environment and Forests, to combat organized wildlife crime in the country, by amending the Wildlife (Protection) Act, 1972, a special Act to protect the wildlife in the country.
- **The Bureau has its headquarter in New Delhi and five regional offices at Delhi, Kolkata, Mumbai, Chennai and Jabalpur; three sub-regional offices at Guwahati, Amritsar, and Cochin; and five border units at Ramanathapuram, Gorakhpur, Motihari, Nathula, and Moreh.**
- Under Section 38 (Z) of the Wild Life (Protection) Act, 1972, it is mandated to collect and collate intelligence related to organized wildlife crime activities and to disseminate the same to State and other enforcement agencies for immediate action so as to apprehend the criminals; to establish a centralized wildlife crime data bank; co-ordinate actions by various agencies in connection with the enforcement of the provisions of the Act; assist foreign authorities and international organization concerned to facilitate co-ordination and universal action for wildlife crime control; capacity building of the wildlife crime enforcement agencies for scientific and

professional investigation into wildlife crimes and assist State Governments to ensure success in prosecutions related to wildlife crimes; and advise the Government of India on issues relating to wildlife crimes having national and international ramifications, relevant policy and laws.

- It also assists and advises the Customs authorities in inspection of the consignments of flora & fauna as per the provisions of Wild Life Protection Act, CITES and EXIM Policy governing such an item.

8. Correct Option: (a)

Explanation:

Wildlife (Protection) Act, 1972

- With the amendment of the Act in 1991, powers of the State Governments have been withdrawn almost totally. **Now the State Governments are not empowered to declare any wild animal a vermin.**
- As per Section 62 of the Wildlife Protection Act, 1972, **States can send a list of wild animals** to the Centre requesting it to declare them vermin for selective slaughter.
- The Central Government **may by notification, declare any wild animal** other than those specified in Schedule I and part 11 of Schedule H of the law to be vermin for any area for a given period of time.
- **Vermins are included in the Schedule-V of the Act.**

9. Correct Option: (c)

Explanation:

Citrus gene sanctuary

- It is in **Meghalaya**.
- A section of the **Nokrek biosphere reserve** was declared the National Citrus Gene Sanctuary in 1984.
- This was done due to the finding of Indian wild oranges (*Citrus indica Tanaka*) in the biosphere reserve.
- It is said to be the only place in the world to house the mother plant of citrus-indica (orange). **And for this, the world's first citrus gene sanctuary was established in this reserve.**

10. Correct Option: (a)

Explanation:

Important days

- **International day on Biodiversity is celebrated on 22 May** to commemorate the adoption of the text of the Convention of Biodiversity on 22 May 1992 by the Nairobi Final Act.
- **World Environment Day is celebrated on 5 June** to commemorate the United Nations Conference on the Human Environment, which took place from 5 June to 16 June 1972.
- **Earth Day is celebrated on 22 April since 1970.**
- **World Wetlands Day is celebrated on 2 February** to commemorate the date of the adoption of the Ramsar Convention on wetland on February 02, 1971, in the city of Ramsar, Iran.

11. Correct Option: (b)

Explanation:

State butterflies of India

- Maharashtra was the 1st state to officially declare **Blue Mormon** (*Papilio polymnestor*) as its state butterfly, way back in 2015 followed by Uttarakhand (**Common peacock**), Karnataka (**Sahyadri/Southern Birdwing**) and Kerala (**Malabar banded peacock or, *Papilio buddha***).

Blue Mormon

Sahyadri/Southern Birdwing

Common peacock

Papilio Buddha

Tamil Yeoman

- Recently, Tamil Nadu became the fifth state by declaring **Tamil Yeoman** (*Cirrochroa thais*) as its state butterfly.

12. Correct Option: (d)

Explanation:

Cheetah reintroduction in India

- Taxonomically, Big Cats are members of the *Felidae* family represented by three genera viz. Panthera (included Lion, Tiger, Jaguar, Leopard and Snow Leopard), Acinonyx (includes Cheetah) and Puma (includes Cougar). Clouded Leopard (*Neofelis nebulosa*) is not a big cat but is considered to be an evolutionary link between small and big cats.
- Four big cat species are found in India in wild viz. Gir Lion, Bengal tiger, Indian leopard, Snow leopard. Further, clouded leopard is also found in India.

Clouded leopard

- The Big Cats that are not found in their natural habitats in India are Jaguar and Cheetah. Cheetah got extinct as back as the 1940s.
- The National Tiger Conservation Authority (NTCA) had previously told the Supreme Court that **African cheetahs would be translocated in India from Namibia and would be kept at Nauradehi wildlife sanctuary in Madhya Pradesh.**

Cheetah

- **Nauradehi was found to be the most suitable area for the cheetahs as its forests are not very dense to restrict the fast movement of the spotted cat.**
- The sanctuary is located in the center of Madhya Pradesh covering parts of Sagar, Damoh, Narsinghpur, and Raisen Districts.

13. Correct Option: (c)

Explanation:

Coastal Regulated Zone (CRZ)

- The **salient features of the draft CRZ Notification, 2018** and changes with

respect to CRZ Notification, 2011, are as under:-

- The **High Tide Line (HTL) has been demarcated by the National Centre for Sustainable Coastal Management (NCSCM)** and shall be reckoned as a universal standard for the HTL for all regulatory purposes under the CRZ Notification, 2018.
- **Hazard line mapping** has also been carried out by Survey of India. The Hazard Line has, however, been **delinked from the CRZ regulatory regime** and shall be used only as a **tool for Disaster Management and planning of adaptive and mitigation measures.**
- **CRZ limits on land along the tidally influenced water bodies** have been proposed to be reduced from 100 meters or the width of the creek, whichever is less, to **50 meters or the width of the creek, whichever is less.**
- A **No Development Zone (NDZ) of 20 meters** has been proposed to be stipulated for all Islands close to the mainland coast and for all Backwater Islands in the mainland.
- **For CRZ-III areas, two separate categories** have been proposed viz.:
  - **CRZ-III A – Densely populated rural areas** with a population density of 2161 per square kilometer as per the 2011 Census. Such areas shall have an **NDZ of 50 meters from the HTL as against 200 meters from the HTL stipulated in the CRZ Notification, 2011.**
  - **CRZ-III B – Rural areas** with a population density of below 2161 per square kilometer as per the 2011 Census. Such areas shall continue to have an **NDZ of 200 meters from the HTL**.

- The procedure for CRZ clearances has been simplified and delegations have been made at various levels for recommending/ according to CRZ clearances to the **projects/activities. Only such projects/ activities, which are located in the CRZ-I & IV areas, shall be dealt with for CRZ clearance by the MoEFCC. For all other project activities located in CRZ-II/III areas, CRZ clearance shall be considered at the level of the CZMA.**
- As per CRZ, 2011 Notification, **for CRZ-II areas, Floor Space Index (FSI) or the Floor Area Ratio (FAR) had been frozen at 1991 Development Control Regulation (DCR) levels.** In the Draft CRZ, 2018 Notification, it has been proposed to de-**freeze the same and permits FSI for construction projects**, as prevailing on the date of the new Notification.
- **Temporary tourism facilities** such as shacks, toilet blocks, change rooms, drinking water facilities, etc. have been proposed in beaches. Such temporary tourism facilities are also proposed to be **permissible in the No Development Zone (NDZ) of the CRZ-III areas.**
- Wherever there is a **National or State Level Highway passing through the NDZ in CRZ-III areas, temporary tourism facilities** have been proposed to be taken up **on the seaward side of the roads**. On the **landward side of such roads in the NDZ, Resorts/Hotels and other tourism facilities** have also been proposed to be permitted subject to the extant regulations of the concerned State.
- **Regulated limestone mining** is proposed to be permitted, subject to strict Environmental safeguards, in **areas adequately above the height of HTL**, based on recommendations of reputed National Institutes in the Mining field.
- The **prohibitive activities along Coastal Regulation Zones** are setting up new industries and expanding existing ones, except projects of the Department of Atomic Energy, setting up and expanding units for the disposal of waste and effluents. However, exceptions include stormwater drains and facilities required for discharging treated effluents. Though prohibitive, these activities are permitted under certain safeguards.
- **Also dumping of the city or town waste for the purposes of land-filling, discarding ash or any other waste from thermal power stations and mining of sand, rocks, and other substrate materials constitute the non-permissive activities.**

14. Correct Option: (a)

Explanation:

Air (Prevention and Control of Pollution) Act 1981

- The Air (Prevention and Control of Pollution) Act, 1981 an Act of the Parliament of India for prevention, control, and abatement

of air pollution in India. It extends to the whole of India.

- The Water Prevention and Control of Pollution Act, 1974 makes provisions for the establishment of the Central Pollution Control Board (CPCB).
- According to this act, the "air pollutant" means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.
- The further provisions of the act say that no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area. Every person to whom consent has been granted by the State Board shall comply with the conditions and norms prescribed by the board such as prevention and control of the air pollution. Failure to do so brings penalty including a jail term of at least 1.5 years.

15. Correct Option: (a)

Explanation:

Forest Rights Act, 2006

- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, has been enacted to recognize and vest the forest rights and occupation of forest land in forest-dwelling Scheduled Tribes and other traditional forest dwellers, who have been residing in such forests for generations, but whose rights could not be recorded.
- The Ministry of Tribal Affairs (MoTA), is the nodal agency to implement this act.
- This Act not only recognizes the rights to hold and live in the forest land under the individual or common occupation for habitation or for self-cultivation for livelihood but also grants several other rights to ensure their control over forest resources which, inter-alia, include right of ownership, access to collect, use and dispose of minor forest produce, community rights such as nistar; habitat rights for primitive tribal groups and pre-agricultural communities; right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use.
- The Act also provides for diversion of forest land for public utility facilities managed by the Government, such as schools, dispensaries, fair price shops, electricity and telecommunication lines, water tanks, etc. with the recommendation of Gram Sabhas.
- Under Section 3(1)(h) of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, the rights of settlement and conversion of all forest villages, old habitations, un-surveyed villages and other villages in forest, whether recorded, notified, or not, into revenue villages have been recognized as one of the forest rights of forest-dwelling Scheduled Tribes and other traditional forest dwellers on all forest lands.
- As per the provisions of the Act and the rules framed thereunder, the forest right related to the conversion of forest villages into revenue villages is to be adjudicated by the Gram Sabha, Sub-Divisional Level Committee and the District Level Committee as per the laid down procedure, like any other forest right specified in the Act.
- The Ministry of Tribal Affairs has issued guidelines impressing upon all the State/UT Governments to convert all such erstwhile forest villages, un-recorded settlements and old habitations into revenue villages with a sense of urgency in a time-bound manner. The conversion would include the actual land use of the village in its entirety, including land required for current or future community uses, like, schools, health facilities, public spaces, etc.

16. Correct Option: (d)

Explanation:

Environmental Impact Assessment

- According to the Convention of Biological Diversity, Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
- United Nations Environment Programme (UNEP) defines Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

- By using EIA both environmental and economic benefits can be achieved, such as reduced cost and time of project implementation and design, avoided treatment/clean-up costs and impacts of laws and regulations.
- Although legislation and practice vary around the world, the fundamental components of an EIA would necessarily involve the following stages:
  - ➤ Screening to determine which projects or developments require a full or partial impact assessment study;
  - ➤ Scoping to identify which potential impacts are relevant to assess (based on legislative requirements, international conventions, expert knowledge, and public involvement), to identify alternative solutions that avoid, mitigate or compensate adverse impacts on biodiversity (including the option of not proceeding with the development, finding alternative designs or sites which avoid the impacts, incorporating safeguards in the design of the project, or providing compensation for adverse impacts), and finally to derive terms of reference for the impact assessment;
  - ➤ Assessment and evaluation of impacts and development of alternatives, to predict and identify the likely environmental impacts of a proposed project or development, including the detailed elaboration of alternatives;
  - ➤ Reporting the Environmental Impact Statement (EIS) or EIA report, including an environmental management plan (EMP), and a non-technical summary for the general audience.
  - ➤ Review of the Environmental Impact Statement (EIS), based on the terms of reference (scoping) and public (including authority) participation.
  - ➤ Decision-making on whether to approve the project or not and under what conditions; and
  - ➤ Monitoring, compliance, enforcement and environmental auditing. Monitor whether the predicted impacts and proposed mitigation measures occur as defined in the EMP. Verify the compliance of proponent with the EMP, to ensure that unpredicted impacts or failed mitigation measures are identified and addressed in a timely fashion.

17. Correct Option: (c)

Explanation:

- PARIVESH (Pro-Active and Responsive facilitation by Interactive, Virtuous and Environmental Single-window Hub)
- **It is an environmental single window hub for Environment, Forest, Wildlife and CRZ clearances.**
- This Single-Window Integrated Environmental Management System has been developed in pursuance of the spirit of 'Digital India' and capturing the essence of Minimum Government and Maximum Governance.
- **"PARIVESH" is a workflow-based application, based on the concept of web architecture.**
- It has been rolled out for online submission, monitoring and management of proposals submitted by Project Proponents to the Ministry of Environment, Forest and Climate Change (MoEFCC), as well as to the State Level Environmental Impact Assessment Authorities (SEIAA).
- It seeks to give various types of clearances (e.g. Environment, Forest, Wildlife and Coastal Regulation Zone Clearances) from Central, State and district-level authorities.
- The system has been designed, developed and hosted by the Ministry of Environment, Forest and Climate Change, with technical support from National Informatics Centre, (NIC).
- It provides single registration and single sign-in for all types of clearances (i.e. Environment, Forest, Wildlife and CRZ), unique-ID for all types of clearances required for a particular project and a single Window interface for the proponent to submit applications for getting all types of clearances.

18. Correct Option: (a)

Explanation:

National Ganga River Basin Authority

- It is a planning, financing, monitoring and coordinating body of the centre and the states.
- The Ministry of Water Resources, River Development and Ganga Rejuvenation(MoWR, RD & GR) is the nodal Ministry for the NGRBA
- It is chaired by the Prime Minister and has as its members the Union Ministers

concerned, the Chief Ministers of the States through which Ganga flows, viz., Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal, among others.

- This initiative is expected to rejuvenate the collective efforts of the Centre and the States for cleaning the river.

19. Correct option: (a)

Explanation:

Environment Pollution Control Authority (EPCA)

- EPCA is a Supreme Court-empowered body which is tasked with taking various measures to tackle air pollution in the National Capital Region. It is constituted with the objective of protecting and improving the quality of the environment and preventing and controlling the environmental pollution in the National Capital Region and also assists the apex court in various environment-related matters in the region.
- It was notified in 1988 by Environment ministryunder Environment Protection act, 1986.
- Besides the chairman, the EPCA has 20 members. Former secretary Bhure Lal is the current chair of EPCA.
- The authority has the power suo-moto, or on the basis of complaints made by any individual, association, company, public undertaking or local body carrying on any industry, operation or process.
- Functions include:
  - To protect and improve quality of environment and prevent and control environmental pollution in National Capital Region.
  - To enforce graded Response Action Plan (GRAP) in NCR as per the pollution levels.

20. Correct Option: (a)

Explanation:

World Wide Fund for Nature (WWF)

- WWF is an international non-governmental organization founded in 1961. It was formerly named the World Wildlife Fund, which remains its official name in Canada and the United States.
- It is working in the field of wilderness preservation, reduce the most pressing threats to the diversity of life on Earth and the reduction of humanity's footprint on the environment.
- It works in partnership with foundations, governments, businesses, communities, individuals and more than six million members, to conserve many of the world's most ecologically important regions. It is the world's largest conservation organization with over five million supporters worldwide, working in more than 100 countries, supporting around 1,300 conservation and environmental projects. WWF is a foundation, with 55% of funding from individuals and bequests, 19% from government sources (such as the World Bank, DFID, USAID) and 8% from corporations in 2014.
- The living planet report is published every two years by WWF since 1998, it is based on living planet index and ecological footprint calculation. WWF publishes the Living Planet Index in collaboration with the Zoological Society of London. Along with ecological footprint calculations, the Index is used to produce a bi-yearly Living Planet Report giving an overview of the impact of human activity on the world.

Objectives:

- Protect and restore species and their habitats
- Strengthen local communities' ability to conserve the natural resources they depend upon
- Transform markets and policies to reduce the impact of the production and consumption of commodities
- Ensure that the value of nature is reflected in decisions made by individuals, communities, governments, and businesses
- Mobilize hundreds of millions of people to support conservation

21. Correct Option (c)

Explanation:

- JCPOA was an agreement reached between **Iran and P5+1 countries in 2015.**

22. Correct Option: (d)

Explanation

All statements are correct

Supplementary notes:

NATGRID

- The NATGRID project has also been in the news for reportedly seeking to link social

media accounts to the huge database of records related to immigration entry and exit, banking and telephone details among other data.

- National Intelligence Grid (NATGRID), an attached office of Ministry of Home Affairs, has been created as an IT platform to assist the intelligence and law enforcement agencies in ensuring national and internal security, with the ultimate aim to counter terror.
- NATGRID, which was conceptualized in 2009, is said to be the brainchild of the then home minister P Chidambaram, who mooted the idea in the wake of the 2008 Mumbai attacks.
- It is an integrated intelligence grid which will connect databases of core security agencies with an aim to collect comprehensive patterns of intelligence that can be readily accessed by intelligence agencies.
- It will link 10 user agencies with certain databases that would be procured from 21 organizations. The agencies concerned include the Intelligence Bureau, local police, and revenue and customs departments.
- NATGRID, like a number of other government initiatives (UIDAI), is being established through governmental notifications rather than legislation passed in Parliament.

23. Correct Option: (d)

Explanation

All statements are correct

Supplementary notes:

NATGRID

- The NATGRID project has also been in the news for reportedly seeking to link social media accounts to the huge database of records related to immigration entry and exit, banking and telephone details among other data.
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- NATGRID, which was conceptualized in 2009, is said to be the brainchild of the then home minister P Chidambaram, who mooted the idea in the wake of the 2008 Mumbai attacks.
- It is an integrated intelligence grid which will connect databases of core security agencies with an aim to collect comprehensive patterns of intelligence that can be readily accessed by intelligence agencies.
- It will link 10 user agencies with certain databases that would be procured from 21 organizations. The agencies concerned include the Intelligence Bureau, local police, and revenue and customs departments.
- NATGRID, like a number of other government initiatives (UIDAI), is being established through governmental notifications rather than legislation passed in Parliament.

24. Correct Answer: (a)

- Explanation: 2nd statement is incorrect. Recently, National Pharmaceutical Pricing Authority (NPPA) has raised the ceiling prices of 21 essential medicines by 50% and not 80%.

Supplementary Notes

- NPAA was established by a Government of India Resolution in 1997. It is an office attached to Department of Pharmaceuticals (DoP), Ministry of Chemicals & Fertilizers.
- It is headquartered in New Delhi.
- Function: It is an independent Regulator for pricing of drugs. It ensures accessibility and availability of medicines to people at affordable prices.
- The NPPA currently fixes price of drugs on National List of Essential Medicines (NLEM) under schedule-I of Drug Price Control Orders (DPCO).
- Recently, National Pharmaceutical Pricing Authority (NPPA) has raised the ceiling prices of 21 essential medicines by 50%.

25. Correct option: (a)

Explanation

- Statement 2 is incorrect: The Chairman and the members of the Commission shall be appointed by the central government on the recommendation of a search committee.

Supplementary notes

The Draft National Statistical Commission Bill

- Draft Bill proposes autonomy for National Statistical Commission which gives government power to make final decision.
- It is put out by Ministry of Statistics & Programme Implementation and is open for public suggestions until 19 January.

About the Bill-

- The draft bill is aimed at empowering the National Statistical Commission (NSC) to become the nodal body for all core statistics in the country.
- Core statistics include national income statistics like GDP, jobs data, industry data and budgetary transactions data.

Features of the Bill-

- As per the draft Bill, the NSC will have a Chairperson, five whole time members along with Deputy Governor of Reserve Bank of India (RBI), Chief Statistician of India (CSI) as other members and Chief Economic Advisor, Ministry of Finance, as the ex-officio member.
- The Chairman and the members of the Commission shall be appointed by the central government on the recommendation of a search committee.
- Along with retaining the advisory nature of NSC, the draft Bill states that the decision of the central government, whether a question is of policy or not, shall be final.
- As per the experts, this proposal goes against the long pending demand to grant more powers to the NSC.
- The draft Bill also seeks to change the composition of the Commission by replacing NITI Aayog Chief Executive Officer with the Finance Ministry's Chief Economic Advisor as the ex-officio member along with giving member status to Chief Statistician of India from the current status of secretary to the NSC.
- As per the draft Bill the central government may, from time to time, issue directions to the Commission as it may think "necessary in the interest of the sovereignty and integrity of India, the security of the State, friendly relations with foreign states, public order, decency or morality".
- The draft also specifies that the Commission "shall in exercise of its powers or the performance of its functions, be bound by such directions or questions as the Central Government may give in writing to it from time to time".
- The draft Bill states that the government shall seek advice from the Commission on any matter relating to official statistics.
- However, central government or a state government may issue directions as necessary to any government agency under its administrative control along with a report on reasons for not accepting any advice to the commission.
- A report on reasons for not accepting any advice of the commission shall be laid before Parliament or a state legislature for a total period of thirty days.
- The draft Bill states that the NSC shall have power to review the statistical system of any government agency in the light of concepts, definitions, standards, methodologies and established policies, and recommend measures for enhanced performance; to prescribe a code of practice.
- Also, the Commission shall participate in consultation with the central government and coordinate with national statistical organisations on matters of statistical standards, methodologies and classifications.

Timing of the Draft bill-

- The draft bill has been released at a time when the government has been facing criticism from several quarters over interference in the release of crucial data unfavourable to it.
- For example, the government withheld jobs data that showed the unemployment rate at a 45-year high, releasing it only six months later, after the general elections.
- The Bill comes at a time when several statistical reports such as the unemployment survey were withheld and consumption expenditure survey was decided to be not released by the government.

About NSC:

- The National Statistical Commission (NSC) of India is an autonomous body which was formed in July 2005.
- The objective of its commission is to reduce the problems faced by statistical agencies in the country in relation to collection of data.

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TEST
DAY - 39

Time Allowed: 30 mins **Maximum Marks: 50**

1. The Global Warming Potential of a species depends on which of the following factors?

1. The absorption of UV-radiation by a given species.
2. The spectral location of its absorbing wavelengths.
3. The atmospheric lifetime of the species.

Select the correct option using the codes given below:

(a) 1 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 3 only

2. Methane is emitted by which of the following processes?

1. The decay of organic waste in municipal solid waste landfills
2. The production and transport of coal
3. Livestock farming

Select the correct option using the codes given below:

(a) 1 only
(b) 1, 2 and 3
(c) 2 and 3 only
(d) 3 only

3. Consider the following statements regarding GHGs and their sources:

1. Carbon dioxide is emitted during cement manufacturing
2. Nitrous oxide is emitted during the treatment of wastewater.
3. Neither oxygen nor nitrogen plays a significant role in enhancing the greenhouse effect because both are transparent to terrestrial radiation.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) 3 only
(d) 1, 2, and 3

4. Which of the following statements is/are correct?

1. Water vapor is the biggest contributor to the greenhouse effect.
2. CO_2 does not have any role in the greenhouse effect of water vapor.

Select the correct option using the codes given below:

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

5. Consider the following pairs of United Nations Framework Convention on Climate Change Conferences of the Parties and their places:

1. CoP-24: Katowice
2. CoP-25: Santiago
3. CoP-26: Glasgow

Which of the above pairs is/are correctly matched?

(a) 1 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2, and 3

6. Consider the following statements regarding tropospheric and stratospheric ozone:

1. Stratospheric ozone is naturally formed in chemical reactions involving ultraviolet sunlight and oxygen molecules.
2. Tropospheric ozone is naturally formed in chemical reactions involving hydrocarbon and nitrogen oxide without involving ultraviolet sunlight.
3. Unlike stratospheric ozone, the tropospheric ozone cannot be destroyed.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

7. Consider the following statements:

1. All halones must include at least one atom of bromine.
2. Bromine is less effective at destroying ozone than chlorine.
3. Dobson unit is a unit of measurement for the total amount of ozone depleted.

Which of the above statements is/are ***incorrect***?

(a) 1 only

(b) 2 only

(c) 2 and 3 only

(d) 1, 2, and 3

8. Consider the following statements regarding Agenda 21:

1. It is an action plan of the United Nations (UN) related to sustainable development.
2. It was an outcome of the Rio+20.
3. The number 21 refers to the number of parties supporting the Agenda i.e. G-20 plus Europian Union.

Which of the above statements is/are ***incorrect***?

(a) 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2, and 3

9. What are the causes of coral bleaching?

1. Invasive alien species
2. Mixing of river waters
3. Extreme low tides
4. Overexposure to sunlight

Select the correct option using the codes given below:

(a) 1, 2, 3

(b) 2, 3, 4

(c) 1, 3, 4

(d) 1, 2, 4

10. Why has an "ozone hole" appeared over Antarctica and *not* over the Arctic?

1. Lower temperature in Antarctica than in the Arctic.
2. Polar vortex is strong in the Arctic than Antarctica.
3. The denitrification of the Polar Stratospheric Clouds is more in Antarctica than the Arctic.
4. The dehydration is rare in the Antarctic than in the Arctic.

Select the correct option using the codes given below:

(a) 1 and 3 only

(b) 2 and 4 only

(c) 1,2, and 4 only

(d) 1, 2, 3, and 4

11. Which of the following can be the possible impacts of climate change on agriculture?

1. Increased crop yields in temperate regions.
2. Decreased amount of arable land in the high-latitude region.
3. Decreased fertilizer requirement.
4. Increase in the agricultural production variability.

Select the correct answer using the code given below:

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1 and 4 only

(d) 1 and 2 only

12. Which of the following are the causes of the urban heat island?

1. The high albedo of cities
2. Lack of vegetation
3. Waste heat

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

13. In the process of Ocean acidification:

(a) Oceans become more alkaline

(b) The concentration of carbonate ions increases

(c) pH level decreases

(d) The concentration of hydrogen ions in the ocean increases

14. Increased level of carbon dioxide in the atmosphere would impact the plants in which of the following ways?

1. A decrease in the photosynthetic productivity of plants.
2. The proliferation of weeds.
3. Increase in the number of insects and other pests.

Select the correct answer using the code given below.

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

15. Which of the following are the main component gases of Green House Gas emission?

1. Carbon dioxide
2. Methane
3. Nitrogen
4. Nitrous oxide

Select the correct answer using the code given below:

(a) 1, 2 and 3 only

(b) 1, 2 and 4 only

(c) 3 and 4 only

(d) 1, 2, 3 and 4

16. Increased level of carbon dioxide in the atmosphere would impact the plants in which of the following ways?

1. A decrease in the photosynthetic productivity of plants.
2. The proliferation of weeds.
3. Increase in the number of insects and other pests.

Select the correct answer using the code given below.

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

17. With reference to extra-terrestrial causes of climate change, consider the following statements:

1. An increase in the number of sunspots leads to warmer and drier conditions on Earth.
2. As the orbital eccentricity of earth increases, summer days increase in both the hemispheres.
3. The axial tilt of Earth's rotational axis controls the duration of seasons.

Which of the above statements is/are correct?

(a) 1 only

(b) 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

18. Which of the following can be the possible impacts of climate change on agriculture?

1. Increased crop yields in temperate regions.
2. Decreased amount of arable land in the high-latitude region.
3. Increased fertilizer requirement.
4. Reduction in agricultural production variability.

Select the correct answer using the code given below:

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1 and 4 only

(d) 1 and 2 only

19. Match the following pairs:

List I	*List II*
A. Black Carbon	1. Stored in the form of aquatic biomass
B. Brown Carbon	2. Originates from the incomplete combustion of fossil fuels
C. Blue Carbon	3. Stored in the soil of natural ecosystems
D. Green Carbon	4. Released by the combustion combustion of organic matter

Select the correct answer using the code given below:

	A	B	C	D
(a)	2	4	3	1
(b)	2	4	1	3
(c)	4	2	1	3
(d)	4	2	3	1

20. Consider the following statements:

1. The Zoological Survey of India (ZSI) was established to promote the survey, exploration and research of the fauna in the region
2. The Botanical Survey of India (BSI) is the apex research organization under the MOEF for carrying out taxonomic and floristic studies on wild plant resources of the country.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

21. Recently, 'eBkray' platform was launched for which of the following?

(a) Auction of assets attached by banks

(b) Integrating e-commerce platforms

(c) Integrating defense procurements

(d) For providing audio content to visually impaired

22. Consider the following statements regarding Parliamentary Standing Committees-

1. Parliamentary committees draw their authority from Article 105 and Article 118.
2. Parliament is not bound by the recommendations of committees.
3. The three financial committees are the Public Accounts Committee, the Estimates Committee and the Committee on Public Undertakings.

Which of the above statements is/are correct?

(a) 3 only

(b) 1 and 2 only

(c) 1 and 3 only

(d) 1,2 and 3

23. Consider the following statements about Gaganyaan Mission-

1. The programme will make India the fourth nation in the world to launch a Human Spaceflight Mission.
2. The spacecraft will be placed in a low

earth orbit of 300-400km.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

24. Consider the following facts about Sambhar lake:

1. The Sambhar Salt Lake is India's largest inland saltwater body located near Jaipur in Rajasthan.
2. Sambhar has not been designated as a Ramsar site.

Which of the above statement(s) is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

25. Consider the following statements about National Tiger Conservation Authority (NTCA)

1. Project Tiger was launched in 1973 with 9 tiger reserves for conserving our national animal, the tiger.
2. The National Tiger Conservation Authority (NTCA) is a statutory body of the Ministry, with an overarching supervisory/coordination role, performing functions as provided in the Wildlife (Protection) Act, 1972.

Choose the correct option

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

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ANSWER HINTS

DAY - 39

1. Correct Option: (c)

Explanation:

Global Warming Potential

- Global warming potential (GWP) is a measure of how much heat a greenhouse gas traps in the atmosphere up to a specific time horizon, relative to carbon dioxide. It compares the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of carbon dioxide and is expressed as a factor of carbon dioxide.
- A GWP is calculated over a specific time horizon, commonly 20, 100, or 500 years. User related choices such as the time horizon can greatly affect the numerical values obtained for carbon dioxide equivalents. In the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, methane has a lifetime of 12.4 years and with climate-carbon feedbacks a global warming potential of 86 over 20 years and 34 over 100 years in response to emissions. For a change in time horizon from 20 to 100 years, the GWP for methane, therefore, decreases by a factor of approximately 2.5.
- **GWP depends on the following factors:**
  - **the absorption of infrared radiation by a given species**
  - **the spectral location of its absorbing wavelengths**
  - **the atmospheric lifetime of the species**
- Thus, a high GWP correlates with a large infrared absorption and a long atmospheric lifetime. The dependence of GWP on the wavelength of absorption is more complicated. Even if a gas absorbs radiation efficiently at a certain wavelength, this may not affect its GWP much if the atmosphere already absorbs most radiation at that wavelength.
- CO_2, by definition, has a GWP of 1 regardless of the time period used, because it is the gas being used as the reference. CO2 remains in the climate system for a very long time: CO_2 emissions cause increases in atmospheric concentrations of CO2 that will last thousands of years.

2. Correct Option: (b)

Explanation:

Methane emissions

- One of the greenhouse gases responsible for this global warming is methane. It is emitted naturally and anthropogenically from different sources and its concentration in the atmosphere has assumed alarming proportions. It is observed that the agricultural sector emits the highest amount of methane, followed by the energy and waste sectors, respectively.
- **Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.**
- **It is emitted during the production and transport of coal, natural gas, and oil.**
- It is released from submerged soils to the atmosphere through the roots and stems of rice plants, which corresponds to 6 to 29 percent of total annual anthropogenic methane emission.

3. Correct Option: (d)

Explanation:

Greenhouse Gases

- Gases that trap heat in the atmosphere are called greenhouse gases. This section provides information on emissions and removals of the main greenhouse gases to and from the atmosphere.

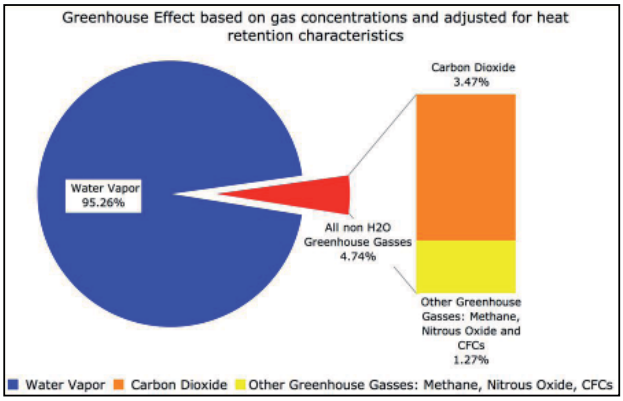
- **Although the Earth's atmosphere consists mainly of oxygen and nitrogen, neither plays a significant role in enhancing the greenhouse effect because both are essentially transparent to terrestrial radiation.** The greenhouse effect is primarily a function of the concentration of water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and other trace gases in the atmosphere that absorb the terrestrial radiation (infra-red) leaving the surface of the Earth.
- Carbon dioxide (CO_2): Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees, and other biological materials, and also as a result of certain chemical reactions (e.g., **manufacture of cement**). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- Methane (CH_4): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous oxide (N_2O): Nitrous oxide is emitted during agricultural and industrial activities, combustion of fossil fuels and solid waste, as well as during the treatment of wastewater.**
- Fluorinated gases: Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for stratospheric ozone-depleting substances (For instance, chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

4. Correct Option: (a)

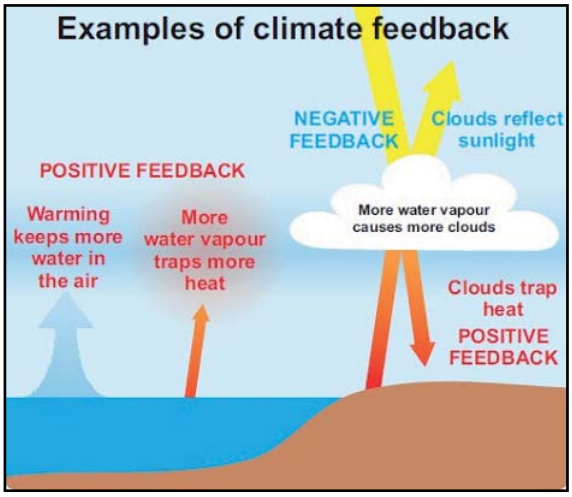
Explanation:

Water vapor

- Water vapor is the biggest overall contributor to the greenhouse effect and humans are not directly responsible for emitting this gas in quantities sufficient to change its concentration in the atmosphere.



- However, CO_2 and other greenhouse gases increase the amount of water vapor in the air **by boosting the rate of evaporation.**
- Since the rate of evaporation rises with temperature, the amount of water vapor in the air at any one time (and the amount of warming it causes) is strongly related to the amount of other greenhouse gases in the air. The addition of the non-condensable gases causes the temperature to increase and this leads to an increase in water vapor that further increases the temperature. This is an example of a positive feedback effect.



5. Correct Option: (b)

Explanation:

UNFCCC Conference of the Parties

- The COP is the supreme decision-making body of the Convention. All States that are Parties to the Convention are represented at the COP, at which they review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements.

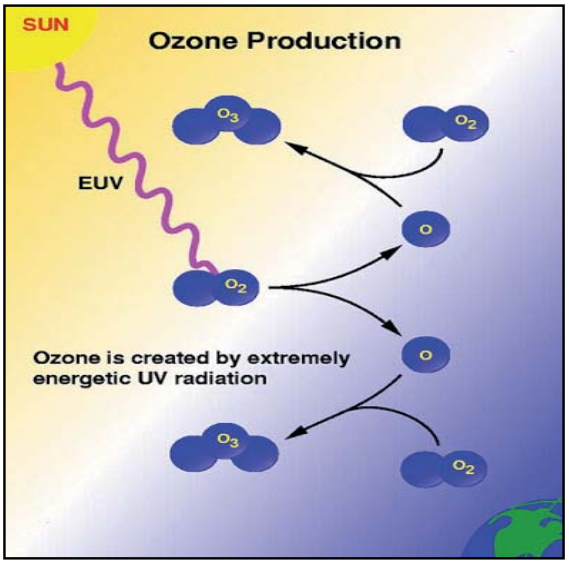
- The first UNFCCC Conference of the Parties took place from 28 March to 7 April 1995 in Berlin, Germany.
- **COP 24 was held on 3–14 December 2018 in Katowice, Poland.**
- The **25th session** of the Conference of the Parties (COP 25) to the UNFCCC was planned to take place from 11 to 22 November 2019 in Brazil. Upon election as President of Brazil, Jair Bolsonaro withdrew Brazil from hosting the event. COP 25 was then planned to take place in Parque Bicentenario Cerrillos in Santiago de Chile, Chile from 2 to 13 December with a pre-sessional period from 26 November to 1 December 2019 with up to 25,000 delegates scheduled to attend. However, following the 2019 Chilean protests, Chilean President Sebastián Piñera announced Chile's withdrawal from hosting the summit in late October 2019. Then Spain offered and was appointed, as the new host. The event took place in **Madrid**.
- The 26th session of the Conference of the Parties (COP 26) to the UNFCCC is expected to take place from 9-19 November 2020, in **Glasgow**, UK.

6. Correct Option: (a)

Explanation:

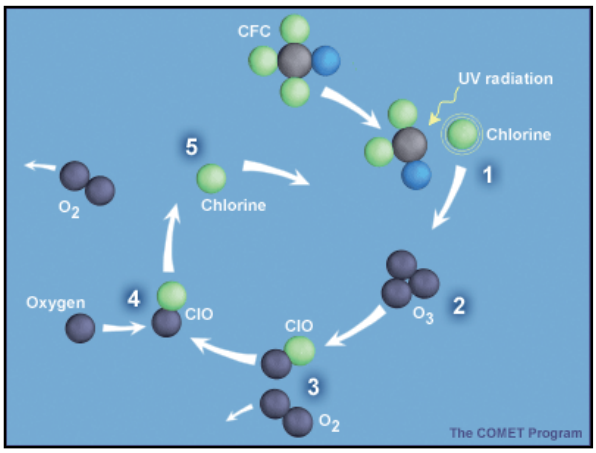
Tropospheric and stratospheric ozone

- Stratospheric ozone is naturally formed in chemical reactions involving ultraviolet sunlight and oxygen molecules, which make up 21% of the atmosphere. In the first step, sunlight breaks apart one oxygen molecule (O_2) to produce two oxygen atoms (2 O). In the second step, each atom combines with an oxygen molecule to produce an ozone molecule (O_3).



Stratospheric ozone formation

- These reactions occur continually wherever ultraviolet sunlight is present in the stratosphere. As a result, the greatest ozone production occurs in the tropical stratosphere.
- **The production of stratospheric ozone is balanced by its destruction in chemical reactions. Ozone reacts continually with a wide variety of natural and human-produced chemicals in the stratosphere. In each reaction, an ozone molecule is lost and other chemical compounds are produced. Important reactive gases that destroy ozone are those containing chlorine and bromine**.
- Some stratospheric ozone is transported down into the troposphere and can influence ozone amounts at Earth's surface, particularly in remote, unpolluted regions of the globe.



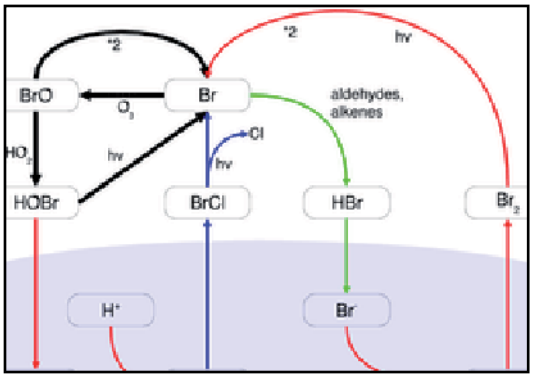
Stratospheric ozone depletion

- **Near Earth's surface, ozone is produced in chemical reactions involving naturally occurring gases and gases from pollution sources. Production reactions primarily involve hydrocarbon and nitrogen oxide gases and require sunlight.** Fossil fuel combustion is a primary pollution source for tropospheric ozone production. The surface production of ozone does not significantly contribute to the abundance of stratospheric ozone. The amount of surface ozone is too small in comparison, and the transport of surface air to the stratosphere is not effective enough.

Tropospheric ozone formation

- **As in the stratosphere, ozone in the troposphere is destroyed in naturally**

occurring chemical reactions and in reactions involving human-produced chemicals. Tropospheric ozone can also be destroyed when ozone reacts with a variety of surfaces, such as those of soils and plants.



Tropospheric ozone depletion

7. Correct Option: (c)

Explanation:

Halones

- **All halons contain bromine which is 40-100 times more effective at destroying ozone than chlorine.** Synergistic interactions between bromine derived mainly from the halons and methyl bromide, and chlorine in the stratosphere is responsible for 30-40% of the Antarctic ozone hole.
- The most commonly used halons are halon-1211 (CBrClF2), halon-1301 (CBrF3), and halon-2402 (C2Br2F4). The numbering system for the halons is different but more simple than for that of the CFCs. The first digit from the left is for the total number of carbon atoms, second is for the number of fluorine atoms, third is for the number of chlorine atoms, and last is the number of bromine atoms.
- Halon-1211 is used primarily in portable fire extinguishing systems in the Western Hemisphere and Western Europe. Halon-1301 is used in flooding systems for fire and explosive containment. Halon-2402 is used as a fire extinguishing agent in Japan, Russia, China, and the former states of the Soviet Union. At the present, there are no known drop-in replacements for the halons, although many groups are working on potential replacements.

Dobson unit

- Dobson unit is a unit of measurement for the total amount of ozone in the atmosphere above a point on the earth's surface, **one Dobson unit being equivalent to a layer of pure ozone 0.01 mm thick at standard temperature and pressure**.

8. Correct Option: (c)

Explanation:

Agenda 21

- **Agenda 21 is a non-binding action plan of the United Nations (UN) related to sustainable development.**
- It was an outcome of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, in **1992** also known as **Earth Summit.**
- It is a comprehensive blueprint of action to be taken globally, nationally and locally by organizations of the UN, governments, and major groups in every area in which humans directly affect the environment.
- **The number 21 refers to an agenda for the 21st century**.

9. Correct Option: ()

Explanation:

Causes of coral bleaching

- **Change in ocean temperature**: Increased ocean temperature caused by climate change is the leading cause of coral bleaching. When water is too warm, corals will expel the algae (zooxanthellae) living in their tissues causing the coral to turn completely white. As little as 2 degrees Fahrenheit can cause coral to drive out algae.
- **Runoff and pollution**: Storm generated precipitation can rapidly dilute ocean water and runo can carry pollutants — these can bleach near-shore corals.
- **Overexposure to sunlight**: When temperatures are high, high solar irradiance contributes to bleaching in shallow-water corals.
- **Extreme low tides**: Exposure to the air during extreme low tides can cause bleaching in shallow corals.
- Invasive alien species: There is not any role of the invasive alien species in the bleaching of corals. At most, they can alter the biodiversity of the reefs.

10. Correct Option: (a)

Explanation:

The ozone hole over Antarctica rather than the Arctic

Distributing halogen gases

- Halogen source gases emitted at Earth's surface are present in comparable abundances throughout the stratosphere in both hemispheres even though most of the emissions occur in the Northern Hemisphere. The abundances are comparable because most source gases have no significant natural removal processes in the lower atmosphere and because winds and convection redistribute and mix air efficiently throughout the troposphere on the timescale of weeks to months. Halogen gases (in the form of source gases and some reactive products) enter the stratosphere primarily from the tropical upper troposphere. Stratospheric air motions then transport these gases upward and toward the pole in both hemispheres.

Low polar temperatures

- The severe ozone destruction represented by the ozone hole requires that low temperatures be present over a range of stratospheric altitudes, over large geographical regions, and for extended time periods. Low temperatures are important because they allow liquid and solid PSCs to form. Reactions on the surfaces of these PSCs initiate a remarkable increase in the most reactive chlorine gas, chlorine monoxide (ClO).
- **In the Antarctic winter, minimum daily temperatures are generally much lower and less variable than in the Arctic winter. These and other meteorological differences occur because of the unequal distribution among land, ocean, and mountains between the hemispheres at middle and high latitudes.** The winter temperatures are low enough for PSCs to form somewhere in the Antarctic for nearly the entire winter (about 5 months) and in the Arctic for only limited periods (10–60 days) in most winters.

Isolated conditions

- Stratospheric air in the polar regions is relatively isolated from other stratospheric regions for long periods in the winter months. The isolation comes about because of strong winds that encircle the poles, forming a polar vortex, which prevents substantial motion of air into or out of the polar stratosphere. This circulation strengthens in winter as stratospheric temperatures decrease, with the result that the isolation of air in the vortex is much more effective in the Antarctic than the Arctic.

Polar stratospheric clouds (PSCs)

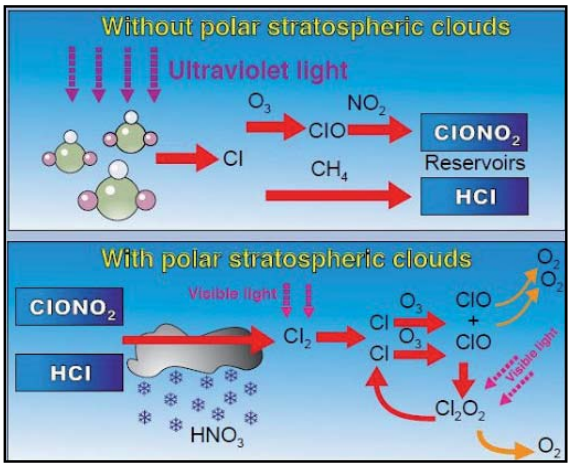
- Reactions on the surfaces of liquid and solid PSCs can substantially increase the relative abundances of the most reactive chlorine gases. These reactions convert the reservoir forms of reactive chlorine gases, chlorine nitrate (ClONO2) and hydrogen chloride (HCl), to the most reactive form, ClO. ClO increases from a small fraction of available reactive chlorine to comprise nearly all chlorine that is available. With increased ClO, additional catalytic cycles involving ClO and BrO become active in the chemical destruction of ozone whenever sunlight is available. PSCs exist in larger regions and for longer time periods in the Antarctic than the Arctic. The most common type of PSC forms from nitric acid (HNO3) and water condensing on pre-existing liquid sulfuric acid-containing particles. Some of these particles freeze to form reactive solid particles.

Nitric acid and water removal

- Once formed, PSC particles fall to lower altitudes because of gravity. The largest particles can descend several kilometers or more in the stratosphere during the low-temperature winter/spring period that lasts several months in Antarctica. Because PSCs often contain a significant fraction of available HNO3, their descent removes HNO3 from regions of the ozone layer. This process is called denitrification of the stratosphere. With less HNO3, the highly reactive chlorine gas ClO remains chemically active for a longer period, thereby increasing chemical ozone destruction.
- **Significant denitrification occurs each winter in the Antarctic and in some, but not all, Arctic winters, because PSC formation temperatures must be**

sustained over an extensive altitude region and time period to affect denitrification.

- Ice particles form when temperatures are a few degrees lower than PSC formation temperatures. If ice temperatures persist for weeks to months over extensive altitude regions, ice particles will also fall several kilometers due to gravity. As a result, a significant fraction of water vapor can also be removed from regions of the ozone layer. This process is called dehydration of the stratosphere. **With the low temperatures required to form ice, dehydration is common in the Antarctic and rare in the Arctic winters**. The removal of water vapor does not directly affect the catalytic reactions that destroy ozone. Dehydration indirectly affects ozone destruction by suppressing PSC formation, which reduces ClO production in PSC reactions.



11. Correct Option: (c)

Explanation:

Impact of Climate Change on Agriculture

- Climate Change can affect crop yield as well as the types of crops that can be grown in certain areas, by impacting agricultural inputs such as water for irrigation, amounts of solar radiation that affect plant growth, as well as the prevalence of pests.
- A rise in temperatures caused by increasing greenhouse gases is likely to affect crops differently from region to region. For example, **moderate warming (an increase of 1 to 3°C in mean temperature) is expected to benefit crop yields in temperate regions,** while in lower latitudes especially seasonally dry tropics, even moderate temperature increases (1 to 2°C) are likely to have negative impacts for major cereal crops. Warming of more than 3°C is expected to have a negative effect on production in all regions.
- **As a result of the thawing of snow, the amount of arable land in the high-latitude region is likely to increase by reduction of the number of frozen lands**. At the same time, arable land along the coastlines is bound to be reduced as a result of rising sea levels.
- Erosion, submergence of shorelines, the salinity of the water table due to the increased sea levels, could mainly affect agriculture through the inundation of low lying lands.
- **The rising temperature would increase fertilizer requirement for the same production targets** and result in higher GHG emissions, ammonia volatilization and cost of crop production.
- **Increased frequencies of droughts, floods, storms, and cyclones are likely to increase agricultural production variability.**

12. Correct Option: (b)

Explanation:

Urban Heat Island

- The urban heat island phenomenon "exists in areas with a lot of densely placed buildings and paved surfaces that absorb heat from the sun, causing the area to be several degrees hotter than rural or surrounding areas.
- Heat islands form in urban and suburban areas due to the following reasons:
  - Paved and impermeable surfaces
  - **Dark surfaces(hence, low albedo of the cities)**
  - Thermal mass
  - **Lack of vegetation**
  - **Waste heat**
  - Climate change
- Cities have a low albedo, the reflecting power of a surface. The increased surface area of buildings results in more solar radiation absorption than reflection.
- The urban heat island effect is so strong in Delhi, that it saw 50% less fog than surrounding areas. In Delhi, the heat island effect also appears to be suppressing the very formation of fog.

13. Correct Option: (c)

Explanation:

Ocean Acidification

- Oceans are an important reservoir for CO2, absorbing a significant quantity of it (one-third) produced by anthropogenic activities and effectively buffering climate change.
- Ocean acidification is the change in ocean chemistry – lowering of ocean pH (i.e. increase in the concentration of hydrogen ions) driven by the uptake of carbon compounds by the ocean from the atmosphere.
- **As the uptake of atmospheric carbon dioxide by the ocean increases, the concentration of hydrogen ions in the ocean increases, the concentration of carbonate ions decreases, the pH of the oceans decreases and the oceans become less alkaline – this process is known as ocean acidification.**

14. Correct Option: (c)

Explanation:

Global Warming

- The increased CO_2 concentration in the atmosphere may **increase the photosynthetic productivity of plants** due to an increased rate of metabolic activity. This, in turn, produces more organic matter.
- Weeds may proliferate rapidly and that too at the expense of useful plants.
- Insects and other pests that feed on plants may also increase in number. The survival of other organisms gets affected. Elevated CO_2 can increase levels of simple sugars in leaves and lower their nitrogen content. These can increase the damage caused by many insects, who will consume more leaves to meet their metabolic requirements of nitrogen. Thus, any attack will be more severe

15. Correct Option: (b)

Explanation:

Green House Gases

- Global warming is a result of a rise in the proportion of atmospheric greenhouse gases (GHG) than their normal level.
- The rise of GHG levels has been attributed to the process of industrialization, urbanization, and pollution caused by vehicular, industrial, domestic and agricultural emission.
- The main component gases of GHG emissions are –
  - **Carbon dioxide**
  - **Methane**
  - Chlorofluorocarbons
  - **Nitrous oxide**
  - Ozone
- **Nitrogen is not the Green House Gas.**

16. Correct Option: (c)

Explanation:

Impact of Increased Carbon Dioxide on Plants

- Weeds may proliferate rapidly and that too at the expense of useful plants.
- Insects and other pests that feed on plants may also increase in number. The survival of other organisms gets affected. Elevated CO_2 can increase levels of simple sugars in leaves and lower their nitrogen content. These can increase the damage caused by many insects, who will consume more leaves to meet their metabolic requirements of nitrogen. Thus, any attack will be more severe
- The increased CO_2 concentration in the atmosphere may **increase the photosynthetic productivity of plants** due to an increased rate of metabolic activity. This, in turn, produces more organic matter.

17. Correct Option: (c)

Explanation:

Extra-Terrestrial causes of Climate Change

- Interstellar Nebulae:
  - The path of the earth around the galaxy is elliptical and its passage every 270 to 400 million years is near to center of the galaxy. In every 300 million years, Earth passes through the dust lane arm of the galaxy. The arm has an accumulation of interstellar matter or the Nebulae. This nebula of galaxy interposes between sun and earth, because of which there is a reduction in solar radiation reaching the earth's surface which might bring in climate change.
- Solar Irradiance:
  - There is a regular fluctuation in the amount of energy irradiated from the outer surface of the sun or the photosphere, this alteration brings changes in the temperatures and precipitation.
  - The changes in the net amount of solar energy received on earth may also

change because of changes in relative distance between earth and sun.

- Sunspots:
  - ➤ These are dark and cooler patches on the sun which increase and decrease in a cyclical manner.
  - ➤ **When the number of sunspots increases, cooler and wetter weather and greater storminess occur. A decrease in sunspot numbers is associated with warm and drier conditions.**
- Milankovitch oscillations:
  - ➤ This theory infers cycles in the variations in the earth's orbital characteristics around the sun, the wobbling of the earth and the changes in the earth's axial tilt. All these alter the amount of insolation received from the sun, which in turn, might have a bearing on the climate.
  - ➤ **The orbital eccentricity of the earth:** The eccentricity of the earth orbit is between 0.001 & 0.054. Earth takes 95,000 years to achieve its maximum eccentricity from the minimum. **As eccentricity increases, days of summer increase both in northern and southern hemispheres.**
  - ➤ **Obliquity of the axial tilt of Earth's rotational axis:** The axial tilt or obliquity of the earth's rotational axis is the angle between the axis of revolution and the axis of rotation of the Earth. **The significance of obliquity is that it controls the latitudinal distribution of solar radiant energy and intensity and duration of different seasons.** The change in the obliquity is directly related to the temperature difference between summers and winters. Smaller is the obliquity; smaller is the change in temperature between summers and winters.
  - ➤ **Axial precision or Precision of equinoxes:** It is a slow and continuous change in the orientation of the rotational axis of the earth due to the effects of gravity of the sun, the moon and of the nearby planets. Due to the effect of gravitational forces on earth the direction of the axis of rotation changes and it forms a complete conical motion. This is also referred to as wobbling of the rotational axis of the earth. This cycle of axial precision is completed in every 26,000 years. The length and warmth of the season alter due to axial precision. It is seen that due to axial precision winters in the northern hemisphere become much longer and warmer while summers in the southern hemisphere become much longer and less warm.

18. Correct Option: (a)

Explanation:

Impact of Climate Change on Agriculture

- Climate Change can affect crop yield as well as the types of crops that can be grown in certain areas, by impacting agricultural inputs such as water for irrigation, amounts of solar radiation that affect plant growth, as well as the prevalence of pests.
- A rise in temperatures caused by increasing greenhouse gases is likely to affect crops differently from region to region. For example, **moderate warming (an increase of 1 to 3°C in mean temperature) is expected to benefit crop yields in temperate regions,** while in lower latitudes especially seasonally dry tropics, even moderate temperature increases (1 to 2°C) are likely to have negative impacts for major cereal crops. Warming of more than 3°C is expected to have a negative effect on production in all regions.
- **As a result of the thawing of snow, the amount of arable land in the high-latitude region is likely to increase by reduction of the number of frozen lands**. At the same time, arable land along the coastlines is bound to be reduced as a result of rising sea levels.
- Erosion, submergence of shorelines, the salinity of the water table due to the increased sea levels, could mainly affect agriculture through the inundation of low lying lands.
- **The rising temperature would increase fertilizer requirement for the same production targets** and result in higher GHG emissions, ammonia volatilization and cost of crop production.
- **Increased frequencies of droughts, floods, storms, and cyclones are likely to increase agricultural production variability.**

19. Correct Option: (b)

Explanation:

List I	*List II*
A. Black Carbon	2. Originates from the incomplete combustion of fossil fuels

B. Brown Carbon	4. Released by the combustion combustion of organic matter
C. Blue Carbon	1. Stored in the form of aquatic biomass
D. Green Carbon	3. Stored in the soil of natural ecosystems

- Black Carbon
  - Black carbon (BC) is a component of fine particulate matter of the size 2.5 μm. It consists of pure carbon, which **originates from the incomplete combustion of fossil fuels**, coal, biofuel, biomass, wood, rubber, etc. It is emitted in the form of soot.
  - Soot is an airborne mass of impure carbon particles resulting from the incomplete combustion of hydrocarbons. It originates from pyrolysis.
- Brown Carbon
  - Brown carbon is brown smoke **released by the combustion of organic matter**. It coexists with black carbon when released in the atmosphere.
  - It is one of the significant warming factors as it disturbs the temperature pattern of the atmosphere and the cloud forming process. It also changes the solar absorption pattern and the nature of clouds.
- Blue Carbon
  - It is the carbon captured by the world's oceans and coastal ecosystems. This carbon is **captured by living organisms in oceans is stored in the form of aquatic biomass**. Seagrasses, mangroves, and marshes are types of vegetated coastal blue carbon ecosystems, these habitats have a cover of approximately 49 million hectares worldwide. Blue carbon ecosystem act as the major sink for capturing atmospheric carbon and reducing warming effects.
- Green Carbon
  - It is the carbon captured into terrestrial plant biomass in photosynthesis and **stored in the plants and soil of natural ecosystems** and is a vital part of the global carbon cycle.

20. Correct Option: (c)

Explanation

Zoological Survey of India

- **The Zoological Survey of India (ZSI) was established to promote the survey, exploration and research of the fauna in the region.**
- The activities of the ZSI are coordinated by the Conservation and Survey Division under the Ministry of Environment, Forest and Climate Change, Government of India
- Primary objectives are: Exploring, Surveying, Inventorying and Monitoring of faunal diversity in various states, selected ecosystems and protected areas of India; Taxonomic studies of the faunal components collected; Status survey of Threatened and Endemic species; Preparation of Red Data Book, Fauna of India and Fauna of States.
- Secondary objectives are: GIS and Remote Sensing studies on recorded animal diversity as well as on threatened species; Chromosomal Mapping and DNA Barcoding.

Botanical survey of India

- **The Botanical Survey of India (BSI) is the apex research organization under the MOEF for carrying out taxonomic and floristic studies on wild plant resources of the country.**
- The prime objectives of the Botanical Survey of India (BSI) is to undertake intensive floristic surveys and collect accurate and detailed information on the occurrence, distribution, ecology and economic utility of plants in the country

21. Correct answer: (a)

Explanation:

'eBkray'

- Recently, Union Finance Minister launches 'eBkray' auction platform for assets attached by banks.
- eBkray is an e-auction platform to enable online auction of attached assets by banks.

- Indian Banks Auctions Mortgaged Properties Information (IBAPI) portal
- It is an initiative of Indian Banks Association under the policy of the Department of Financial Services, Ministry of Finance to provide a platform to provide details of mortgaged properties to be auctioned online by Banks, starting with PSBs.

- The eBkray platform provides navigational links to all PSB e-auction sites, property search feature and presents single-window access to information on properties up for e-auction, comparison of similar properties, and also contains videos and photographs of the uploaded properties.
- Buyers can use IBAPI portal to search and get properties details and participate in the auction process. Presently 21 banks are onboard on this portal
- Currently, there are 2,457 residential, 576 commercial, 333 industrial and 18 agricultural properties are available on eBkray platform among others.
- PSBs have attached assets worth over Rs 2.3 lakh crore in the last three fiscal years.

Objectives of eBkray

- To enhance user experience through seamless access to information by the search based on the type and location of the property put up for e-auction by the banks in India.
- To enable online auction of attached assets transparently and cleanly for the improved realization of value by banks.
- It will provide navigational links to all Public Sector Banks (PSBs) e-auction sites, property search feature and will present single-window access to information on properties up for e-auction, comparison of similar properties, as well as contains videos and photographs of uploaded properties.
- The platform also helps the buyer to easily navigate to the bank e-auction site after a notified property is selected. It also helps the user to search property using State-wise, District-wise and bank-wise details.

Need

- There has been information asymmetry when bank attached assets are auctioned which will come to an end with the launch eBkray.
- Simplify auction process

22. Correct answer- (d)

Explanation-

About Parliamentary Committees:

In the Indian Parliament, a Standing committee is a committee consisting of Members of Parliament or MPs.

- It is a permanent and regular committee which is constituted from time to time according to the provisions of an Act of Parliament or Rules of Procedure and Conduct of Business.
- There are two types of Parliamentary committee, the Standing committee and the Ad hoc committee.
  - ➤ The Standing committees are constituted every year or frequently and they work on continuous basis.
  - ➤ Ad hoc committees are temporary and created for specific task. Once that task is completed, the ad hoc committees cease to exist.
- Parliamentary committees draw their authority from Article 105 (on privileges of Parliament members) and Article 118 (on Parliament's authority to make rules for regulating its procedure and conduct of business).
- These Committees are smaller units of MPs from both Houses, across political parties and they function throughout the year.
- These smaller groups of MPs study and deliberate on a range of subject matters, Bills, and budgets of all the ministries. Parliament is not bound by the recommendations of committees.

23. Correct answer- (c)

Explanation-

About the Mission-

- The programme will make India the fourth nation in the world to launch a Human Spaceflight Mission. So far, only the USA, Russia and China have launched human spaceflight missions.
- ISRO has developed some critical technologies like re-entry mission capability, crew escape system, crew module configuration, thermal protection system, deceleration and floatation system, sub-systems of life support system etc. required for this programme.
- GSLV Mk-III launch vehicle, which has the necessary payload capability for this mission, will be used to launch Gaganyaan.

- Two unmanned Gaganyaan missions will be undertaken prior to sending humans.
- The mission will aim to send a three-member crew to space for a period of five to seven days.
- The spacecraft will be placed in a low earth orbit of 300-400km.
- The total programme cost is expected to be less than Rs. 10,000 crores.
- With the ability to hold one oxygen cylinder, the suit will allow the astronaut to breathe in space for 60 minutes.

24. Correct Answer: (a)

- Explanation: 2nd statement is incorrect: Sambhar has been designated as a Ramsar site.

Supplementary Notes

- Recently, the Indian Veterinary Research Institute (IVRI) has attributed the deaths of migratory birds to avian botulism at Sambhar Lake in Rajasthan. In this context, Sambhar lake was in news.
- The avian botulism is a neuro-muscular illness caused by Botulinum (natural toxin) that is produced by a bacteria — Clostridium botulinum.

Sambhar Lake

- The Sambhar Salt Lake is India's largest inland saltwater body located near Jaipur in Rajasthan.
- The lake is surrounded on all sides by the Aravali hills.
- It is the source of most of Rajasthan's salt production.
- Sambhar has been designated as a Ramsar site (recognized wetland of international importance) because the wetland is a key wintering area for tens of thousands of flamingos and other birds that migrate from northern Asia.

- The bacteria are commonly found in the soil, rivers, and seawater. It affects both humans and animals.
- The bacteria also need anaerobic (absence of oxygen) conditions and do not grow in acidic conditions.
- It affects the nervous system of birds, leading to paralysis in their legs and wings.
- The outbreaks of avian botulism tend to occur when average temperatures are above 21 degrees celsius, and during droughts.
- Causes of Mass Mortality at Sambhar Lake
- The possible causes for avian botulism at Sambhar Lake are:
- Reduced water levels: This might have increased salinity levels leading to the death of living organisms.
- The decaying plant or animal materials are capable of hosting the bacteria for a longer period of time.
- A bird-to-bird cycle: Since only insectivorous and omnivorous birds were affected and not herbivores, the birds feeding on dead birds could have been a possible cause of such mortality.
- The possibility of external factors like water pollution and eutrophication are ruled out as no farming is being carried out in the vicinity of sambhar lake.

25. Correct Answer: (c)

Explanation:

- Project Tiger and National Tiger Conservation Authority (NTCA)
  - ➤ Project Tiger was launched in 1973 with 9 tiger reserves for conserving our national animal, the tiger. Currently, the Project Tiger coverage has increased to 50, spread out in 18 tiger range states.
  - ➤ The tiger reserves are constituted on a core/buffer strategy. The core areas have the legal status of a national park or a sanctuary, whereas the buffer or peripheral areas are a mix of forest and non-forest land, managed as a multiple use area.
  - ➤ It is an ongoing Centrally Sponsored Scheme of the Ministry of Environment, Forests and Climate Change providing central assistance to the tiger States for tiger conservation in designated tiger reserves.
  - ➤ The National Tiger Conservation Authority (NTCA) is a statutory body of the Ministry, with an overarching supervisory/coordination role, performing functions as provided in the Wildlife (Protection) Act, 1972.
  - ➤ The NTCA was launched in 2005, following the recommendations of the Tiger Task Force. It was given statutory status by 2006 amendment of Wildlife (Protection) Act, 1972.

TEST
DAY - 40

Time Allowed: 30 mins **Maximum Marks: 50**

1. Which of the following national parks are situated in Assam?

1. Orang
2. Nameri
3. Dibru-Saikhowa
4. Gorumara

Select the correct option using the codes given below:

(a) 2 and 3 only
(b) 1, 2, and 3 only
(c) 1 and 4 only
(d) 1, 2, 3, and 4

2. Consider the following statements regarding a sanctuary:

1. It is a marine wildlife sanctuary located between the Dhamra River and Brahmaniriver.
2. It is very famous for its nesting beach for olive ridley sea turtles.

Which of the following sanctuaries has been described above?

(a) Bhitarkanika
(b) Gahirmatha
(c) Chilika lake
(d) Rann of Kutch

3. Consider the following statements:

1. Man and the Biosphere Programme (MAB) is an intergovernmental scientific program, launched in 1971 by UN Environment.
2. The latest World Congress of Biosphere Reserves took place in Lima, Peru in 2016.
3. A total of 18 biosphere reserves of India have been included in the World Network of Biosphere Reserves.

Which of the above statements is/are ***incorrect*****?**

(a) 1 only
(b) 2 only
(c) 1 and 3 only
(d) 1, 2 and 3

4. Which of the following national park has the largest area?

(a) Desert National Park
(b) Jim Corbett National Park
(c) Hemis National Park
(d) Gangotri National Park

5. Which of the following statements regarding Mahatma Gandhi Marine National Park are correct?

1. It was created to protect marine life such as the corals and nesting sea turtles prevalent in the area.
2. It is also known as Wandoor National Park.
3. It is situated in Gujarat.

Select the correct option using the codes given below:

(a) 2 and 3 only
(b) 1 and 3 only
(c) 1 and 2 only
(d) 1, 2, and 3

6. Which of the following national parks is also a Natural World Heritage Site in India?

(a) Jim Corbett National Park

(b) Silent Valley National Park

(c) KeibulLamjao National Park

(d) Keoladeo Ghana National Park

7. Which of the following pairs is/are correctly matched?

1. Largest national park: Gangotri NP
2. Largest biosphere reserve: Gulf of Mannar BR
3. Largest wildlife sanctuary: Wild Ass WLS

Select the correct option using the codes given below:

(a) 2 only

(b) 1 and 3 only

(c) 1 and 2 only

(d) 1, 2, and 3

8. Which of the following biosphere reserves is ***not*** included under UNESCO-Man and Biosphere Program?

(a) Khangchendzonga

(b) Nokrek

(c) Pachmarhi

(d) Manas

9. Which of the following statements is/ are correct?

1. Pitti Wildlife Sanctuary is the only marine protected area of Lakshadweep.
2. It is located on the Bangaram Atoll.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

10. Kappatagudda wildlife sanctuary is situated in which state?

(a) Tamil Nadu

(b) Karnataka

(c) Kerala

(d) Telangana

11. Which of the following national parks are in the Union Territory of Jammu and Kashmir?

1. Dachigam National Park
2. Kishtwar National Park
3. Hemis National Park
4. Salim Ali National Park

Select the correct option using the codes given below:

(a) 1 and 2 only

(b) 2 and 4 only

(c) 1, 2, and 4 only

(d) 1, 2, 3 and 4

12. Which of the following statements regarding Hope Spots is/are correct?

1. It is an initiative pioneered by the International Union for Conservation of Nature.
2. Only the Andaman and Nicobar Islands are the hope spots of India.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

13. Select the correct statement(s) regarding Indian estuarine ecosystem:

(a) In India, major estuaries are found in the Arabian Sea

(b) Estuaries on the eastern coast are smaller than those on the west coast

(c) Intensive aquaculture is the reason for the declining productivity of Indian estuaries

(d) Both (a) and (b)

14. Mangroves exhibit a Viviparity mode of reproduction. This implies:

(a) Seeds germinate in the tree itself before falling to the ground

(b) The new plant grows from an outgrowth in the plant body

(c) The new plant grows from the fragments of the parent plant after they fall on the ground

(d) Seeds germinate after falling to the ground.

15. Coral is a living animal having a symbiotic relationship with 'zooxanthellae' algae. In this respect, select the correct statement:

(a) Zooxanthellae live up on coral to get adequate light.

(b) Corals supply zooxanthellae with nutrients which it cannot get on the seafloor.

(c) Zooxanthellae protect the corals from ocean predators like big fish, sharks etc.

(d) All of the above

16. Coral reefs are classified depending on their locations into fringing, barrier, patch, and atoll. In this context, identify the correct statement?

(a) Patch reefs are contiguous with the shores.

(b) Fringing reefs are offshore structures running parallel to coastlines.

(c) Atolls are circular or semi-circular reefs.

(d) Barrier reefs are the most common types of reefs.

17. Wetlands are transitional areas intermediate in character between deep-water and terrestrial habitats. Which of the following is *not* a characteristic of wetland ecosystem?

(a) Areas of marine water with depth at low tide exceeding 6 metres.

(b) Waterlogged soils for at least 7 days during the growing season.

(c) Hydrophytes

(d) Hydric soils

18. With reference to wetland classification, select the correct statement:

(a) Wetlands are only found along the coastal regions.

(b) The creek is an example of a man-made wetland.

(c) A pond represents an inland wetland ecosystem.

(d) Coral reefs do not classify as a wetland as per the definition of wetlands.

19. Select the correct statement regarding Montreux Record:

(a) It is a list of wetlands of national importance.

(b) It is not a part of the Ramsar Convention.

(c) It contains only those sites where adverse changes in ecological character have occurred.

(d) Chilika Lake and Keoladeo National Park are the only Indian sites in Montreux Record.

20. Which of the following is *not* the characteristic of an estuarine ecosystem?

(a) Semi-enclosed water body

(b) High activity of waves

(c) High productivity

(d) Highly populated

21. With reference to Islamic Cooperation countries (OIC), consider the following statements

1. It is the second largest inter-governmental organization after the United Nations.
2. The OIC has permanent delegations to the United Nations and the European Union.
3. India is one of its founding member

Choose the correct option from the following

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

22. Consider the following statements regarding Good Governance Index,

1. It is used to provide quantifiable data to compare the state of governance in all states and UTs.
2. The index does not consider Public Health and Infrastructure.
3. All the indicators are given same weightage under one Governance Sector to calculate the value.

Which of the following statements is/are correct?

(a) 2 and 3 only

(b) 1 only

(c) 3 only

(d) 1, 2 and 3

23. With reference to Khadi and Village Industries Commission (KVIC), consider the following statements

1. It is a statutory body.
1. It is an apex organisation under the Ministry of tribal affairs.
2. It has the economic objective of producing saleable articles.

Choose the correct option from the following

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

24. Which of the following are the objectives of Bharat Darshan Scheme?

1. To position tourism as a major engine of economic growth and job creation;
2. Develop circuits having tourist potential in a planned and prioritized manner
3. Promote cultural and heritage value of the country to generate livelihoods in the identified regions
4. Build rural infrastructure

Choose the correct option

(a) 1, 2 and 3

(b) 1 and 2

(c) 1, 2, 3 and 4

(d) 1 and 3

25. Quick Reaction Surface to Air Missile (QRSAM) system was successfully test fired by DRDO recently. Which of the following statements are incorrect about Quick Reaction Surface to Air Missile (QRSAM) system?

1. It uses solid fuel propellant and has a strike range of 25-30 km with capability of hitting multiple targets.
2. The missile is an all-weather, all-terrain surface-to-air missile equipped with electronic counter measures against jamming by aircraft radars
3. It will be commissioned to Indian Navy.

Choose the correct option

(a) Only 1

(b) 1 and 2 only

(c) 1, 2 and 3

(d) Only 3

****

ANSWER HINTS

DAY - 40

1. Correct Option: (b)

Explanation:

National parks in Assam

- There are five national parks in Assam.
- These are Dibru-Saikhowa national park, Kaziranga NP, Manas NP, Nameri NP, and Rajiv Gandhi Orang NP.
- Gorumara national park is in West Bengal.

2. Correct Option: (b)

- The above statements are about Gahirmatha marine sanctuary
- It is situated in Odisha between the Dhamra River and Brahmaniriver.
- It is very famous for its nesting beach for olive ridley sea turtles

3. Correct Option: (c)

Explanation:

Man and the Biosphere Programme

- Man and the Biosphere Programme (MAB) is an intergovernmental scientific program, launched in 1971 by UNESCO.
- The latest World Congress of Biosphere Reserves took place in Lima, Peru, from 14 to 17 March 2016.
- The program has identified so far, 142 biosphere reserves across the globe as a part of the World Network of Biosphere Reserves.
- India has a total of 18 biosphere reserves of which 11 are included in the Network.
- The latest addition is the Agasthyamalai Biosphere Reserve.

4. Correct Option: (c)

Explanation:

National parks

- The top five largest national parks are Hemis National Park(Jammu and Kashmir), Desert National Park(Rajasthan), Gangotri National Park(Uttarakhand), Namdapha National Park(Arunachal Pradesh), and Khangchendzonga National Park(Sikkim).
- Jim Corbett National Park is in 9th place.

5. Correct Option: (c)

Explanation:

Mahatma Gandhi Marine National Park

- It is situated near Wandoor in South Andaman.
- The park was created on 24 May 1983 under the Wildlife Protection Act of 1972 to protect marine life such as the corals and nesting sea turtles prevalent in the area.
- There are 2 major island groups in the park viz. the Labyrinth Islands and the Twin Islands.

6. Correct Option: (d)

Explanation:

Keoladeo Ghana National Park

- Out of the total 38 World Heritage Sites, there are seven natural world heritage sites in India.
- These are Great Himalayan National Park, Kaziranga National Park, Keoladeo National Park, Manas Wildlife Sanctuary, Nanda Devi and Valley of Flowers National Parks, Sundarbans National Park, and the Western Ghats.

7. Correct Option: (a)

Explanation:

Protected areas in India

- Presently, there are 18 notified biosphere reserves in India. Gulf of Mannar BR is the largest biosphere reserve with 10,500 km^2 though the core area is of only 5.55 km^2.
- There are 551 existing wildlife sanctuaries in India covering an area of 119775.80 km^2, which is 3.64 % of the geographical area of the country. Kachchh Desert WLS is the largest with the area of 7506.22 km^2. Wild Ass WLS is the second largest.
- There are 104 existing national parks in India covering an area of 40,501 km^2, which is 1.23% of the geographical area of the country. Desert NP with 3162 km^2 is the largest national park,Gangotri NP is the second largest.

8. Correct Option: (d)

Explanation:

Man and Biosphere Program network in India

- Launched in 1971, UNESCO's Man and the Biosphere Programme (MAB) is an Intergovernmental Scientific Programme that aims to establish a scientific basis for the improvement of relationships between people and their environments.
- Out of 18 notified biosphere reserves in India, 11 are included in the MAB program.
- These are Nilgiri, Gulf of Mannar, Sunderban, Nanda Devi, Nokrek, Pachmarhi, Similipal, Achanakmar-Amarkantak,GreatNicobar,Agasthyamala, and Khangchendzonga.

9. Correct Option: (a)

Explanation:

Pitti Wildlife Sanctuary

- Pitti Bird Island, which is important for breeding and migratory populations of many marine terns, was declared as a wildlife sanctuary in 2000.
- It is the only marine protected area of Lakshadweep.
- It is on the Agatti Atoll (coral reef).

10. Correct Option: (b)

Explanation:

Kappatagudda wildlife sanctuary

- It is in Karnataka.
- On 16 May 2019, the state government changed its status from the 'Conservation Reserve' to the 'Wildlife Sanctuary'.
- The sanctuary encompasses Gadag, Mundargi, and Shirahatti, and is spread across 244.15 sq km.

11. Correct Option: (c)

Explanation:

National parks in the Union Territories of Jammu & Kashmir and Ladakh

- There were 4 national parks in the Jammu and Kashmir viz. Dachigam National Park, Kishtwar National Park, Hemis National Park, and Salim Ali National Park.
- After the delimitation, 3 are in J&K and 1 in Ladakh.
- Hemis (or Hemis High Altitude National Park) is a high altitude national park in the eastern Ladakh. Globally famous for its snow leopards, it is believed to have the highest density of them in any protected area in the world. It is the only national park in India that is north of the Himalayas inside the Palearctic ecozone.
- Dachigam National park is located in the Zabarwan Range of the western Himalayas in J and K.
- Kishtwar National Park is located in the Kishtwar district of Jammu and Kashmir.
- Salim Ali National Park or City Forest National Park was a national park located in Srinagar.

12. Correct Option: (d)

Explanation:

Hope spots

- Hope Spots are special places that are critical to the health of the ocean — Earth's blue heart. They are about recognizing, empowering and supporting individuals and communities around the world in their efforts to protect the ocean.
- Dr. Sylvia Earle introduced the concept in her 2009 TED talk and since then the idea has inspired millions across the planet. Her initiative, Mission Blue has partnered with the International Union for Conservation of Nature (IUCN) and receives support from National Geographic, Rolex, and Google.

- Hope Spots are often areas in the ocean that need new protection, but they can also be existing MPAs where more action is needed. They can be large, they can be small, but they all provide hope due to:
  - A special abundance or diversity of species, unusual or representative species, habitats or ecosystems
  - Particular populations of rare threatened or endemic species
  - A site with potential to reverse damage from negative human impacts
  - The presence of natural processes such as major migration corridors or spawning grounds
  - Significant historical, cultural or spiritual values
  - Particular economic importance to the community.
  - The two island groups (Lakshadweep and Andaman & Nicobar Islands) are the first hope spots in India.

13. Correct Option: (c)

Explanation:

Indian Estuarine Ecosystem

- India has 14 major, 44 medium and 162 minor rivers drains into the sea through various estuaries.
- Estuaries are an important and distinct component of the coastal landscape with highly complex ecosystems, varying physical-chemical properties and having highly diverse flora and fauna.
- Major estuaries occur in the Bay of Bengal.
- Many estuaries are locations of some of the major seaports.
- Most of India's major estuaries occur on the east coast. In contrast, the estuaries on the west coast are smaller.

Issues with Indian Estuarine Ecosystem

- Changes in water flow- either in excess or less than required in various estuaries like Narmada, Krishna, Godavari, Pulicat
- Pollution through industries and combined city sewage
- Dredging activities like in Hooghly
- Changing land-use and expanding rural-urban settlements
- Reclamation of the fringed areas for intensive aquaculture
- Submergence of catchment areas due to rising in water level
- Change in biodiversity profile, affecting the production and productivity

14. Correct Option: (a)

Explanation:

Characteristics of Mangroves

- Mangroves exhibit Viviparity mode of reproduction i.e. seeds germinate in the tree itself (before falling to the ground).
- This is an adaptive mechanism to overcome the problem of germination in saline water.

15. Correct Option: (a)

Explanation:

Coral Reefs

- Coral is actually a living animal.
- Coral has a symbiotic relationship (each gives something to the other and gets something back in return) with 'zooxanthellae' microscopic algae which live on coral [i.e. instead of living on the seafloor, the algae lives upon the coral which is closer to the ocean surface and so that the algae gets adequate light].
- Zooxanthellae assist the coral in nutrient production through its photosynthetic activities. These activities provide the coral with fixed carbon compounds for energy, enhance calcification, and mediate elemental nutrient flux.
- The tissues of corals themselves are actually not the beautiful colors of the coral reef but are instead clear (white). The corals receive their coloration from the zooxanthellae living within their tissues.
- The host coral polyp in return provides its zooxanthellae with a protected environment to live within, and a steady supply of carbon dioxide for its photosynthetic processes.

16. Correct Option: (c)

Explanation:

Classification of Coral Reefs

- The coral reefs are classified depending on their locations into fringing, patch, barrier, and atoll.
- The fringing reefs are contiguous with the shore and they are the most common - by occurring reef form, found in Andaman.

- Patch reefs are isolated and discontinuous patches, lying shoreward of offshore reef structures as seen in the Palk Bay, Gulf of Mannar and Gulf of Kutch
- Barrier reefs are linear offshore reef structures that run parallel to coastlines and arise from submerged shelf platforms. The water body between the reef and the shore is termed as a lagoon. Barrier reefs are seen in Nicobar and Lakshadweep.
- Atolls are circular or semicircular reefs that arise from subsiding seafloor platforms as coral reef-building keeps ahead of subsidence. The examples are the atolls of Lakshadweep and Nicobar.
- Among the four major reef areas of India, Andaman and Nicobar Islands are found to be very rich in species diversity followed by the Lakshadweep Islands, the Gulf of Mannar and finally the Gulf of Kutch

17. Correct Option: (a)

Explanation:

Characteristics of Wetlands

- Wetlands are areas of marsh, fen, peatland/ water, whether natural (or) artificial, permanent (or) temporary with water that is static (or) flowing, fresh, brackish (or) salt, including areas of marine water the depth of which at low tide does not exceed 6 metres.
- Covered by water (or) has waterlogged soil for at least seven days during the growing season.
- Adopted plant life (hydrophytes)
- Hydric soils (not enough O_2 available for some plants)

18. Correct Option: (c)

Explanation:

Wetland Classification

- Wetlands can be classified as Inland and Coastal wetlands which can further be divided into natural and man-made wetlands.

19. Correct Option: (a)

Explanation:

Montreux Record

- It is a register of wetland sites on the List of Wetlands of International Importance and a principal tool under the Ramsar convention.
- It highlights those sites where adverse changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference and which are therefore in need of priority conservation attention.
- It is maintained as part of the Ramsar List.
- Montreux Record is employed to identify priority sites for positive national and international conservation attention. Sites may be added to and removed from the Record only with the approval of the Contracting Parties in which they lie.
- Chilika Lake, Orissa was placed on the Montreux Record in 1993 due to siltation, which was choking the mouth of the lake. Following the rehabilitation efforts of the government, it was removed from the Record in 2002.
- Keoladeo National Park, Rajasthan was placed on the Montreux Record in 1990 due to water shortage and unbalanced grazing regime around it.
- Loktak Lake, Manipur was included on the Montreux Record in 1993 (signifying habitat degradation), as a result of ecological problems such as deforestation in the catchment area, the infestation of water hyacinth and pollution.

20. Correct Option: (b)

Explanation:

Characteristics of Estuaries

- An Estuary is a semi-enclosed coastal body of water with one or more rivers or streams flowing into it.
- It has a free connection with the open sea.
- The complete salinity range from 0-35 ppt is seen from the head (river end) to the mouth (sea end) of an estuary.
- An estuary has very little wave action, so it provides a calm refuge from the open sea. It provides shelter for some of the animals.
- It is the most productive region as it receives a high amount of nutrients from fresh and marine water.
- Estuaries are the most heavily populated areas throughout the world, with about 60% of the world's population living along estuaries and the coast. The banks of estuarine channels form a favored location for human settlements, which use the estuaries for fishing and commerce.
- They also act as a filter for some dissolved constituents in river water; these

precipitate in the zone where river water meets seawater.

- More important is the trapping of suspended mud and sand carried by rivers which leads to delta formations around estuaries.

21. Correct option: (a)

Explanation

Statement 3 is incorrect: India was invited for the first time ever in the recent summit. It is not a founding member of the organization.

Supplementary notes

Islamic Cooperation countries (OIC)

- The Organisation of Islamic Cooperation (OIC) is the second largest inter-governmental organization after the United Nations with a membership of 57 states spread over four continents.
- The Organization was established upon a decision of the historical summit which took place in Rabat, Kingdom of Morocco on 12th Rajab 1389 Hijra (September 25, 1969).
- In 1970, the first-ever meeting of the Islamic Conference of Foreign Minister (ICFM) was held in Jeddah, which decided to establish a permanent secretariat.
- The secretariat comprises a secretary-general who is the Chief Administrative Officer of the organisation.
- The majority of its member states are Muslim-majority countries, while others have significant Muslim populations, including several African and South American countries.
- Over the last 40 years, the membership has grown from its founding members of 30 to 57 states.
- The OIC has permanent delegations to the United Nations and the European Union. The official languages of the OIC are Arabic, English, and French.
- While the 22 members of the Arab League are also part of the OIC, the organisation has several significant non-Arab member states, including Turkey, Iran and Pakistan.
- It also has five observer members, including Russia and Thailand.
- The OIC holds an Islamic Summit once every three years.
- Member states each get a vote. Each member state can table a resolution and then others can vote on it or suggest tweaks.
- OIC aims to preserve Islamic values, safeguard and defend the national sovereignty and independence of member states and to contribute to international peace and security.
- While the organisation has been known for its cultural and social projects, its political influence has been relatively limited.
- OIC doesn't have a unified voice because most of its member countries are not democracies. So, while their populations may be in agreement they do not always represent the views of their populations.

22. Correct option: (b)

Explanation

Statement 2 and 3 are incorrect: The GGI takes into consideration ten sectors:

- Agriculture and Allied Sectors,
- Commerce & Industries,
- Human Resource Development,
- Public Health,
- Public Infrastructure & Utilities,
- Economic Governance,
- Social Welfare & Development,
- Judicial & Public Security,
- Environment and
- Citizen-Centric Governance.

Supplementary notes

Good Governance Index

- These ten Governance Sectors are measured on total 50 indicators. Difference indicators are given different weightage under one Governance Sector to calculate the value. E.g. Under Agriculture & Allied Sector, there are 6 indicators with different weightage, namely: Growth rate of agriculture and allied sector (0.4), growth rate of food grains production (0.1), growth rate of horticulture produce (0.1), growth rate of milk production (0.1), growth rate of meat production (0.1) and crop insurance (0.2).
- The states and UTs are divided into three groups: a). Big States, b). North-East & Hill States and c). UTs. The states and UTs are ranked on all indicators separately, at the same time composite ranking is also calculated for these states and UTs under their respective groups based upon these indicators.
- The Good Governance Index is a uniform tool across States to assess the Status

of Governance and impact of various interventions taken up by the State Government and UTs.

- The objectives of GGI are to provide quantifiable data to compare the state of governance in all states and UTs, enable states and UTs to formulate and implement suitable strategies for improving governance and shift to result oriented approaches and administration.

23. Correct option: (c)

Explanation

Statement 2 is incorrect: It is an apex organisation under the Ministry of Micro, Small and Medium Enterprises, with regard to khadi and village industries within India.

Supplementary notes

Khadi and Village Industries Commission (KVIC)

- The Khadi and Village Industries Commission (KVIC) is a statutory body formed by the Government of India, under the Act of Parliament, 'Khadi and Village Industries Commission Act of 1956'.
- It is an apex organisation under the Ministry of Micro, Small and Medium Enterprises, with regard to khadi and village industries within India.
- It seeks to - "plan, promote, facilitate, organise and assist in the establishment and development of khadi and village industries in the rural areas in coordination with other agencies engaged in rural development wherever necessary.
- The KVIC may also undertake directly or through other agencies studies concerning the problems of Khadi and/or village industries besides research or establishing pilot projects for the development of Khadi and village industries.
- The KVIC is authorized to establish and maintain separate organisations for the purpose of carrying out any or all of the above matters besides carrying out any other matters incidental to its activities.
- The broad objectives that the KVIC has set before it are
  - The social objective of providing employment.
  - The economic objective of producing saleable articles.
  - The wider objective of creating self-reliance amongst the poor and building up of a strong rural community spirit.

24. Correct Answer: (a)

Explanatory Notes: 4th statement is incorrect. Bharart Darshan Scheme does not aim at building rural infrastructure.

Supplementary Notes

Salient Features of Bharat Darshan Scheme

- 100% centrally funded for the project components undertaken for public funding.
- To leverage the voluntary funding available for Corporate Social Responsibility (CSR) initiatives of Central Public Sector Undertakings and corporate sector.
- Funding of individual project will vary from state to state and will be finalised on the basis of detailed project reports prepared by PMC (Programme Management Consultant). PMC will be a national level consultant to be appointed by the Mission Directorate.
- A National Steering Committee (NSC) will be constituted with Minister in charge of M/O Tourism as Chairman, to steer the mission objectives and vision of the scheme.
- A Mission Directorate headed by the Member Secretary, NSC as a nodal officer will help in identification of projects in consultation with the States/ UTs governments and other stakeholders.

Scheme Objectives

- To position tourism as a major engine of economic growth and job creation;
- Develop circuits having tourist potential in a planned and prioritized manner
- Promote cultural and heritage value of the country to generate livelihoods in the identified regions
- Enhancing the tourist attractiveness in a sustainable manner by developing world class infrastructure in the circuit / destinations
- Follow community based development and pro-poor tourism approach
- Creating awareness among the local communities about the importance of tourism for them in terms of increased sources of income, improved living standards and overall development of the area.

- To create employment through active involvement of local communities;
- Harness tourism potential for its effects in employment generation and economic development
- To make full use of the potential and advantages in terms of available infrastructure, national culture and characteristic strong points of each and every region throughout the country by development of theme based circuits.
- Development of tourist facilitation services to enhance visitor experience/satisfaction.

25. Correct Answer (d)

Explanation: statements 1 and 2nd are correct. Only third statement is incorrect. Quick Reaction Surface to Air Missile (QRSAM) system will be commissioned to Indian Army.

Supplementary Notes

- DRDO successfully test-fired its Quick Reaction Surface to Air Missile (QRSAM) system, likely to be inducted into the armed forces by 2021, from a base off Odisha coast.
- The missile, developed by the Defence Research and Development Organisation (DRDO) for the Indian Army, was flight-tested from the Integrated Test Range (ITR) at Chandipur
- It has been developed to replace the 'Akash' missile defence system, and has 360-degree coverage.
- The first test firing of the missile took place on 4 June 2017. This was followed by the second successful test on 3 July 2017.
- The test flights had successfully demonstrated their aerodynamics, propulsion, structural performance and high maneuvering capabilities.
- Features
  - ➤ It uses solid fuel propellant and has a strike range of 25-30 km with capability of hitting multiple targets.
  - ➤ Developed by DRDO
  - ➤ It is capable of hitting the low flying objects.
  - ➤ The missile is an all-weather, all-terrain surface-to-air missile equipped with electronic counter measures against jamming by aircraft radars
  - ➤ The missile can be mounted on a truck and is stored in a canister.
  - ➤ The missile is equipped with a midcourse inertial navigation system with a two-way data link and a DRDO-developed terminal active seeker. The system has the capability to search and track targets while moving.
  - ➤ QRSAM is a compact weapon system and is mobile. It has a fully automated Command and Control System. The missile system comprises of two four-walled radars both of which encompass a 360-degree coverage, namely, the Active Array Battery Surveillance Radar and the Active Array Battery Multifunction Radar, apart from the launcher.

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TEST
DAY - 41

Time Allowed: 30 mins **Maximum Marks: 50**

1. Consider the following statements regarding the Convention on the Conservation of Migratory Species of Wild Animals:

1. It is the only global convention specializing in the conservation of migratory species.
2. It is also known as the Bonn Convention.
3. It is a legally binding treaty.

Which of the above statements is/are correct?

(a) 3 only
(b) 1 and 2 only
(c) 2 only
(d) 1, 2, and 3

2. Which of the following is the National Implementing Entity (NIE) for Green Climate Fund in India?

(a) Small Industries Development Bank of India
(b) Ministry of Environment, Forests and Climate Change
(c) National Bank for Agriculture and Rural Development
(d) Reserve Bank of India

3. Which of the following statements regarding the Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES) is/are *incorrect*?

1. It is an international agreement between governments
2. It is also known as the Washington Convention.
3. It is legally binding on the Parties.

Select the correct answer using the code given below:

(a) 2 only
(b) 1 only
(c) 2 and 3 only
(d) None of the above.

4. Which of the following is/are correct regarding Biodiversity Financial Initiative (BIOFIN)?

1. It is a global initiative of the United Nations Development Programme for funding biodiversity projects.
2. It was launched during the 2010 Convention on Biodiversity (Conference of Parties) 10 in Nagoya.
3. National Biodiversity Authority is the nodal agency for its implementation in India.

Select the correct answer using the code given below:

(a) 1, 2 and 3
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1 and 3 only

5. Which of the following pairs regarding conventions and their protocols/ Agreement are correctly matched?

1. Convention on Biological Diversity: Cartagena Protocol
2. United Nations Framework Convention on Climate Change: Nagoya Protocol
3. Vienna Convention for the Protection of the Ozone Layer: Kigali Amendment

Select the correct answer using the code given below:

(a) 1 and 3 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

6. Which of the following statements is/are correct?

1. The Stockholm Convention is a global treaty to protect human health and the environment from persistent organic pollutants (POPs).
2. The Green Climate Fund is the designated interim financial mechanism for the Stockholm Convention.

Select the correct option using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

7. Consider the following statements with respect to an international organization:

1. It was established by the first United Nations conference on the environment.
2. Maurice Strong was its first director.
3. "Earthwatch" is coordinated by this organization.

Which of the following organization has been described above?

(a) International Union for Conservation of Nature

(b) Birdlife International

(c) United Nations Environment Programme

(d) World Wide Fund for Nature

8. Consider the following statements regarding WWF?

1. It is the world's largest conservation organization.
2. It is funded primarily by the World Bank.
3. It publishes both the Living Planet Report and the Living Planet Index.

Which of the above statements are correct?

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2, and 3

9. Which of the following statements regarding the Intergovernmental Panel on Climate Change is/are correct?

1. Intergovernmental Panel on Climate Change was established by the World Meteorological Organization and UN Environment.
2. It has its headquarter in Nairobi.

Select the correct option using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

10. Which of the following pairs are correctly matched?

	Organizations:	***Headquarters***
1.	International Union for Conservation of Nature:	Gland
2.	Global Green Growth Institute:	California
3.	350.org:	Seoul

Select the correct option using the code given below:

(a) 1 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1 and 3 only

11. Which of the following statements is/are correct?

1. The Global Environment Facility was established during the Rio Earth Summit, 1992.
2. The Green Climate Fund was established during the Rio+5 Summit.
3. Adaptation Fund (AF) was established under the Kyoto Protocol in 2001.

Select the correct option using the code given below:

(a) 1 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1 and 3 only

12. Which of the following statements regarding TRAFFIC is/are correct?

1. It is a joint program World Wide Fund for Nature and World Bank.
2. Its headquarters is located in Cambridge, United Kingdom.

Select the correct option using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

13. With reference to the Global Environment Outlook, consider the following statements:

1. It is a flagship environmental assessment of the Intergovernmental Panel on Climate Change (IPCC).
2. The theme of the sixth Global Environment Outlook is "Healthy Planet, Healthy People".

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

14. With reference to the Black Carbon Research Initiative, consider the following statements:

1. It is an Indian initiative launched as a part of the National Carbonaceous Aerosols Program (NCAP).
2. It is to monitor the black carbon aerosols and assess its impacts on the microclimates.
3. Ministry of Earth Sciences, Indian Space Research Organization Ministry of Environment and Department of Science and Technology are implementing agencies of this programme.

Which of the above statements is/are correct?

(a) (a) 1 and 2 only

(b) (b) 1 only

(c) (c) 2 and 3 only

(d) (d) 1, 2 and 3

15. Consider the following statements regarding the International Whaling Commission (IWC):

1. India is a member state.
2. International Convention for the Regulation of Whaling is the legal framework that established the IWC in 1946.
3. Indian Ocean Whale Sanctuary is one of the sanctuaries designated by IWC.

Which of the above statements are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

16. Which one of the following magazine is published by Birdlife International?

(a) World Birdwatch

(b) Birding world

(c) Birders world

(d) Wild bird

17. Consider the following statements with respect to the United Nations Environmental Programme (UNEP):

1. It was founded as a result of the Stockholm conference in 1972.
2. It coordinates the UN's environmental activities, assisting developing countries in implementing environmentally sound policies and practices.
3. UNEP facilitates the transfer of knowledge and technology for sustainable development.
4. It is headquartered in Geneva, Switzerland.

Which of the above statements are correct?

(a) 2 and 4 only

(b) 1, 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, 3 and 4

18. With reference to the Environment Pollution Control Authority (EPCA), consider the following statements:

1. EPCA is a supreme court mandated non-statutory body.
2. The Minister of Environment & Forests (MoEF) holds the chairmanship of EPCA.
3. It has the power to take suo-moto cognizance of matters related to environmental pollution.

Which of the above statements are *incorrect?*

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

19. Consider the following statements regarding the United Nations Framework Convention on Climate Change (UNFCCC):

1. It is an international treaty drawn at the UN Conference on Environment and Development, Rio de Janeiro, 1992.
2. Kyoto Protocol implemented the objectives of UNFCCC to fight global warming by reducing the concentration of greenhouse gases.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

20. With reference to 'The United Nations Office for Disaster Risk Reduction ', consider the following statements:

1. Its functions span the social, economic, environmental as well as humanitarian fields.
2. It supports the implementation, follow-up, and review of the Sendai Framework for Disaster Risk Reduction.
3. It publishes the Global Assessment Report on Disaster Risk Reduction in collaboration with the World Bank.

Which of the statements given above are correct

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

21. "Nagpur Resolution", which was seen recently in news, refers to?

(a) It is United Nations Security Council resolution that extends the sanctions against the Central African Republic.

(b) The Convention establishes rules of airspace, aircraft registration and safety, security, and sustainability, and details the rights of the signatories in relation to air travel.

(c) It is a convention that plays a role in the implementation of several international conventions on nature conservation and biodiversity.

(d) It is to empower the citizens by policy interventions for better service delivery through timely updation of citizen's charters, implementation of enactments and benchmarking standards for continuous improvement.

22. With reference to Rohtang Tunnel, consider the following statements

1. It has been recently named after VD savarkar
2. Upon completion, it will be the world's longest highway tunnel at an altitude of above 10,000 feet.
3. It will reduce the distance between North Jammu and North Kashmir.

Choose the correct option from the following

(a) 1 and 2 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

23. Consider the following statements regarding Joint Comprehensive Plan of Action (JCPOA)

1. It is also known as the "Iran deal
2. The agreement is made between Iran, the P5+1and the European Union.

Choose the correct option from the following

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

24. Which of the following committee recommended the institution of collegium system for the appointment of chief election commissioner and election commissioners?

(a) Dinesh Goswami Committee

(b) Administrative Reforms Committee

(c) Punchhi Commission

(d) Sarkaria Commission

25. Consider the following statements regarding Chief of Defence Staff,

1. It will be in the rank of four star general.
2. The Chief of Defence Staff will head the Department of Military Affairs (DMA).
3. One of the tasks of CDS will be Promoting use of indigenous equipment by the Services.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

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ANSWER HINTS

DAY - 41

1. Correct Option: (b)

Explanation:

Conservation of Migratory Species of Wild Animals

- As an environmental treaty of the United Nations, CMS provides a global platform for the conservation and sustainable use of migratory animals and their habitats. CMS brings together the States through which migratory animals pass, the Range States, and lays the legal foundation for internationally coordinated conservation measures throughout a migratory range.
- **It is also known as the Bonn Convention,** as it was signed there in 1979.
- **As the only global convention specializing in the conservation of migratory species**, their habitats and migration routes, CMS complements and co-operates with a number of other international organizations, NGOs and partners in the media as well as in the corporate sector.
- Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Besides establishing obligations for each State joining the Convention, CMS promotes concerted action among the Range States of many of these species.
- Migratory species that need or would significantly benefit from international co-operation are listed in Appendix II of the Convention. For this reason, the Convention encourages the Range States to conclude global or regional agreements.
- In this respect, CMS acts as a framework Convention. **The agreements may range from legally binding treaties (called Agreements) to less formal instruments, such as Memoranda of Understanding, and can be adapted to the requirements of particular regions.** The development of models tailored according to the conservation needs throughout the migratory range is a unique capacity to CMS.

2. Correct Option: (c)

Explanation:

Green Climate Fund

- The GCF helps developing countries limit or reduce their greenhouse gas (GHG) emissions and adapt to climate change. It seeks to promote a paradigm shift to low-emission and climate-resilient development, taking into account the needs of nations that are particularly vulnerable to climate change impacts. It was formally established by a UNFCCC decision in Durban, South Africa in December 2011.
- India has moved forward in this regard by selecting the Ministry of Environment, Forests and Climate Change as India's Nationally Designated Authority (NDA) for the GCF, which will recommend to the Board of the GCF funding proposals in the context of national climate strategies.
- **Further NABARD has been accredited by Green Climate Fund (GCF) Board as one of the National Implementing Entity (NIE) for GCF in India.** NABARD will be responsible for management and oversight of project implementation, which includes the origination and preparation of a funding proposal, the subsequent management of the necessary stages of the implementation process until its conclusion (project management) on behalf of GCF, and reporting obligations.

3. Correct Option: (d)

Explanation:

Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES)

- **It is an international agreement** (multilateral treaty) between governments.
- **Also known as the Washington Convention** it was drafted as a result of a resolution adopted by members of IUCN in 1963 and entered into force in 1975.
- Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
- **CITES is legally binding on the Parties.** However, it does not take the place of national laws. It only provides a framework to be respected by each Party. The parties need to adopt their own domestic legislation to ensure that CITES is implemented at the national level.
- CITES accords varying degrees of protection to more than 35,000 species of animals and plants. The species covered by CITES are listed in three Appendices, according to the degree of protection they need.

4. Correct Option: (d)

Explanation:

Biodiversity Financial Initiative (BIOFIN)

- **UNDP** in October 2012, **launched the Biodiversity Finance Initiative – BIOFIN,** as a new global partnership seeking to **address the biodiversity finance challenge in a comprehensive manner** – building a sound business case for increased investment in the management of ecosystems and biodiversity.
- BIOFIN was initiated in response to the urgent global need to divert more finance from all possible sources towards global and national biodiversity goals, as highlighted during the 2010 Convention on Biodiversity (Conference of Parties) 10 in Nagoya. Subsequently, it was launched during CBD COP 11 in 2012.
- The overarching objective of BIOFIN is to **deliver a new methodological framework, facilitating the identification, development, and implementation of optimal and evidence-based finance plans and solutions**.
- BIOFIN is coordinated by UNDP through a global team developing and updating the BIOFIN methodology, supporting its implementation in the countries, and developing capacities at the national and global levels on biodiversity finance.
- BIOFIN in India is **led by the Ministry of Environment, Forest and Climate Change (MoEFCC)**. UNDP India manages the program under the guidance of MoEFCC. The initiative is **hosted by the National Biodiversity Authority (NBA),** working with four relevant State Biodiversity Boards, with **technical assistance from Wildlife Institute of India (WII) and National Institute of Public Finance and Policy (NIPFP).**

5. Correct Option: (d)

Explanation:

Conventions and protocols

Convention on Biological Diversity (CBD)

- The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has 3 main objectives:
  - The conservation of biological diversity
  - The sustainable use of the components of biological diversity
  - The fair and equitable sharing of the benefits arising out of the utilization of genetic resources
- **Both the Cartagena Protocol and Nagoya Protocol are related to the CBD.**
- The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international agreement which aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003.
- The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity is an international agreement which aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way. It entered into force on 12 October 2014, 90 days after the date of deposit of the fiftieth instrument of ratification.

United Nations Framework Convention on Climate Change

- The United Nations Framework Convention on Climate Change (UNFCCC)

is an international environmental treaty adopted on 9 May 1992 and opened for signature at the Earth Summit in Rio de Janeiro from 3 to 14 June 1992. It then entered into force on 21 March 1994, after a sufficient number of countries had ratified it. The UNFCCC objective is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".

- The Framework Convention specifies the aim of Annex I Parties stabilizing their greenhouse gas emissions (carbon dioxide and other anthropogenic greenhouse gases not regulated under the Montreal Protocol) at 1990 levels, by the year 2000.
- **Kyoto Protocol and Paris Agreement are the treaties under the Convention.**
- Vienna Convention for the Protection of the Ozone Layer
- The Vienna Convention for the Protection of the Ozone Layer is a multilateral environmental agreement signed in 1985 that provided frameworks for international reductions in the production of chlorofluorocarbons due to their contribution to the destruction of the ozone layer.
- It was the first convention of any kind to be signed by every country involved, taking effect in 1988 and reaching universal ratification in 2009. This speaks to the enormity of ozone depletion at the time and the willingness of countries around the world to work together to solve it. The Convention aimed to promote cooperation among nations by exchanging information on the effects of human activities on the ozone layer.
- The Montreal Protocol on Substances that Deplete the Ozone Layer is a global agreement to protect the Earth's ozone layer by phasing out the chemicals that deplete it. This phase-out plan includes both the production and consumption of ozone-depleting substances. The landmark agreement was signed in 1987 and entered into force in 1989.
- The parties to the Protocol meet once a year to make decisions aimed at ensuring the successful implementation of the agreement.
- The most recent amendment, **the Kigali Amendment,** called for the phase-down of hydrofluorocarbons (HFCs) in 2016. These HFCs were used as replacements for a batch of ozone-depleting substances eliminated by the original Montreal Protocol. Although they do not deplete the ozone layer, they are known to be powerful greenhouse gases and, thus, contributors to climate change.

6. Correct Option: (a)

Explanation:

Stockholm Convention on POPs

- The Stockholm Convention is a global treaty to protect human health and the environment from persistent organic pollutants (POPs). POPs are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife. POPs circulate globally and can cause damage wherever they travel. In implementing the Convention, Governments will take measures to eliminate or reduce the release of POPs into the environment. Over 152 countries ratified the Convention and it entered into force, on 17 May 2004.
- The Global Environmental Facility (GEF) is the designated interim financial mechanism for the Stockholm Convention.
- United Nations Industrial Development Organization is also responsible for supporting developing countries and countries with economies in transition to implement the Stockholm Convention.

7. Correct Option: (c)

Explanation:

United Nations Environment Programme

- The United Nations Environment Programme is an agency of the United Nations that coordinates its environmental activities, assisting developing countries in implementing environmentally sound policies and practices.
- It's headquartered at Nairobi, Kenya.
- It was founded by Maurice Strong, its first director, as a result of the United Nations Conference on the Human Environment (Stockholm Conference) in June 1972, which was the first United Nations conference on the environment.
- It has overall responsibility for environmental problems among United Nations agencies but international talks on specialized issues, such as addressing global warming or combating desertification, are overseen by other UN organizations.

- One of UNEP's most widely recognized activities is Earthwatch, an international monitoring system designed to facilitate the exchange of environmental information among governments.

8. Correct Option: (b)

Explanation:

World Wide Fund for Nature (WWF)

- WWF is an international non-governmental organization founded in 1961. It was formerly named the World Wildlife Fund, which remains its official name in Canada and the United States.
- It is working in the field of wilderness preservation, reduce the most pressing threats to the diversity of life on Earth and the reduction of humanity's footprint on the environment.
- It works in partnership with foundations, governments, businesses, communities, individuals and more than six million members, to conserve many of the world's most ecologically important regions.
- **It is the world's largest conservation organization** with over five million supporters worldwide, working in more than 100 countries, supporting around 1,300 conservation and environmental projects.
- WWF is a foundation, with 55% of funding from individuals and bequests, 19% from government sources (such as the World Bank, DFID, USAID) and 8% from corporations in 2014.
- **The living planet report is published every two years by WWF since 1998, it is based on living planet index and ecological footprint calculation.**
- WWF publishes the Living Planet Index in collaboration with the Zoological Society of London. Along with ecological footprint calculations, the Index is used to produce a bi-yearly Living Planet Report giving an overview of the impact of human activity on the world.

9. Correct Option: (a)

Explanation:

IPCC

- Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and UN Environment in 1988, with headquarter in Geneva. The IPCC produces reports that contribute to the work of the United Nations Framework Convention on Climate Change.
- United Nations Environment Programme or just, UN Environment is a program of the United Nations that coordinates the organization's environmental activities and assists developing countries in implementing environmentally sound policies and practices. Its headquarter is in Nairobi, Kenya.

10. Correct Option: (a)

Explanation:

International environmental organizations

- **International Union for Conservation of Nature** is an international organization (NGO), **headquartered in Gland, Switzerland**, working in the field of nature conservation and sustainable use of natural resources. It is involved in data gathering and analysis, research, field projects, advocacy, lobbying, and education. The organization is best known for compiling and publishing the IUCN Red List.
- **Global Green Growth Institute** is a treaty-based international organization headquartered in **Seoul, South Korea**, aiming to promote green growth, a growth paradigm that is characterized by a balance of economic growth and environmental sustainability.
- **350.org** is an international environmental organization addressing the climate crisis. Its goal is to end the use of fossil fuels and transition to renewable energy by building a global, grassroots movement. The 350 in the name stands **for 350 ppm (parts per million) of carbon dioxide** which has reached 415 ppm as of 2019. **It's headquartered in Oakland, California.**

11. Correct Option: (d)

Explanation:

Climate Financing

- The Global Environment Facility (GEF) was established on the eve of the **1992 Rio Earth Summit** to help tackle our planet's most pressing environmental problems.
- The Green Climate Fund was GCF was established under the **Cancun Agreements in 2010** as a dedicated financing vehicle for developing countries within the global climate architecture,

serving the Financial Mechanism of the UNFCCC and the Paris Agreement.

- Adaptation Fund (AF) was established under the Kyoto Protocol in 2001.

12. Correct Option: (b)

Explanation:

TRAFFIC

- **Wildlife Trade Monitoring Network (TRAFFIC), a joint program of the World Wide Fund for Nature (WWF) and IUCN,**
- It is a non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.
- **Its headquarters is located in Cambridge, United Kingdom.**

13. Correct Option: (b)

Explanation:

Global Environment Outlook (GEO)

- **GEO is the UN Environment Programme's flagship environmental assessment.**
- It was first published in 1997 and was originally requested by the Member States.
- GEO is a consultative and participatory process to prepare an independent assessment of the state of the environment, the effectiveness of the policy response to address these environmental challenges and the possible pathways to achieve various internationally agreed environmental goals.

Global Environment Outlook-6

- The sixth edition of the Global Environmental Outlook (GEO-6) report was released by the UN Environment Programme's (UNEP).
- The theme of the sixth Global Environment Outlook (GEO6), is a healthy planet, healthy people.
- GEO-6 builds on previous GEO reports. It, however, differs from previous GEO reports in its emphasis on Sustainable Development Goals and in providing possible means of accelerating achievement of these goals.

14. Correct Option: (d)

Explanation:

Black Carbon Research Initiative

- ISRO-GBP (Indian Space Research Organization's Geosphere-Biosphere Programme) recognized the importance of Black Carbon aerosols on the climate system and decided to pursue studies of Black Carbon in subsequent years.
- In view of this, a **multi-institutional and multi-agency Science Plan** has been launched in the **Ministry of Environment in association with the Ministry of Earth Sciences, Indian Space Research Organization, Ministry of Science and Technology and other associated agencies**, to **monitor aerosols and assess its impacts** through various modeling techniques.
- It is an Indian initiative **launched as a part of the National Carbonaceous Aerosols Program (NCAP)** under the aegis of the Indian Network for Climate Change Assessment, INCCA.

15. Correct Option: (d)

Explanation:

The International Whaling Commission (IWC)

- The International Whaling Commission (IWC) is the global body charged with the **conservation of whales and the management of whaling**. It was set up to provide for the **proper conservation of whale stocks** and thus make possible the **orderly development of the whaling industry**. Uncertainty over whale numbers led to the introduction of a 'moratorium' on commercial whaling in 1986. This remains in place although the Commission continues to set catch limits for aboriginal subsistence whaling.
- The main duty of the IWC is to keep under **review and revise as necessary the measures laid down in the Schedule to the Convention which govern the conduct of whaling throughout the world**. These measures, among other things, provide for the complete protection of certain species; designate specified areas as whale sanctuaries; set limits on the numbers and size of whales which may be taken; prescribe open and closed seasons and areas for whaling, and prohibit the capture of suckling calves and female whales accompanied by calves.
- The IWC currently has **89 member governments from countries all over the world**. **India is a member**

state. **All members are signatories** to the International Convention for the Regulation of Whaling.

- International Convention for the Regulation of Whaling is an international environmental agreement that **governs the commercial, scientific, and aboriginal subsistence whaling practices**. This **Convention is the legal framework that established the IWC** in 1946.
- Today, the Commission also works to understand and address a **wide range of non-whaling threats to cetaceans including entanglement, ship strike, marine debris, climate change, and other environmental concerns.**
- In 1994, it created the **Southern Ocean Whale Sanctuary surrounding the continent of Antarctica**. Here, the IWC has banned all types of commercial whaling.
- **Only two such sanctuaries have been designated by IWC to date.** Another is **Indian Ocean Whale Sanctuary by the tiny island nation of Seychelles**.

16. Correct Option: (a)

Explanation:

Birdlife International

- Birdlife International is a **global partnership of conservation organizations** that strives to **conserve birds, their habitats and global biodiversity**, working with people towards sustainability in the use of natural resources. Each BirdLife Partner is an independent environmental not-for-profit, non-governmental organisation or NGO. Most Partners are best known outside of the Partnership by their organization's name. This allows each partner to maintain its individual national identity within the global Partnership
- It was **earlier known as International Committee for Bird Preservation.**
- It is the **official Red List Authority for birds, for the International Union for Conservation of Nature**.
- It publishes a **quarterly magazine**, **World Birdwatch,** which contains recent news and authoritative articles about birds, their habitats, and their conservation around the world.
- It **publishes the scientific journal, Bird Conservation International**.

17. Correct Option: (b)

Explanation:

United Nations Environment Programme (UNEP)

- The United Nations Environment Programme is an agency of the United Nations that coordinates its environmental activities, assisting developing countries in **implementing environmentally sound policies and practices.** The working area of UNEP is divided into **seven broad thematic areas**: climate change, disasters and conflicts, ecosystem management, environmental governance, chemicals and waste, resource efficiency, and the environment under review maintaining the overarching commitment to sustainability in all its work.
- **It's headquartered at Nairobi, Kenya.**
- It was **founded by Maurice Strong**, its first director, **as a result of the United Nations Conference on the Human Environment (Stockholm Conference) in June 1972** and has overall responsibility for environmental problems among United Nations agencies but international talks on specialized issues, such as addressing global warming or combating desertification, are overseen by other UN organizations.
- UN Environment has **aided in the formulation of guidelines and treaties on issues** such as the international trade in potentially harmful chemicals, transboundary air pollution, and contamination of international waterways. **Relevant documents, including scientific papers, are available via the UNEP Document Repository.**
- UNEP work encompasses
  - Assessing global, regional and national environmental conditions and trend
  - Developing international and national environmental instruments
  - Strengthening institutions for the wise management of the environment
  - **Facilitating the transfer of knowledge and technology for sustainable development**

18. Correct option: (a)

Explanation:

Environment Pollution Control Authority (EPCA)

- EPCA is a **Supreme Court-empowered body** which is tasked with taking **various**

measures to tackle air pollution in the National Capital Region. It is constituted with the objective of p**rotecting and improving the quality of the environment and preventing and controlling the environmental pollution in the National Capital Region and** also **assists the apex court in various environment-related matters** in the region.

- It was **notified in 1988 by Environment ministryunder Environment Protection act, 1986**.
- Besides the **chairman**, the EPCA has **20 members**. Former secretary BhureLal is the current chair of EPCA.
- The authority has the **power suo-moto, or on the basis of complaints made** by any individual, association, company, public undertaking or local body carrying on any industry, operation or process.
- Functions include:
  - To **protect and improve quality of environment and prevent and control environmental pollution in National Capital Region.**
  - To **enforce graded Response Action Plan (GRAP) in NCR** as per the pollution levels.

19. Correct Option: (c)

Explanation:

United Nations Framework Convention on Climate Change (UNFCCC)

- In 1992, countries joined an international treaty, the United Nations Framework Convention on Climate Change (UNFCCC), as a framework for international cooperation to combat climate change by limiting average global temperature increases and the resulting climate change, and coping with impacts that were, by then, inevitable.
- The Parties to this Convention acknowledges that Change in the Earth's climate and its adverse effects are a common concern for humankind
- Human activities have been substantially increasing the atmospheric concentrations of greenhouse gases, that these increases enhance the natural greenhouse effect, and that this will result on average in an additional warming of the Earth's surface and atmosphere and may adversely affect natural ecosystems and humankind
- The largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs,
- Kyoto Protocol implemented the objective of the UNFCCC to fight global warming by reducing greenhouse gas concentrations in the atmosphere to a level that would prevent dangerous anthropogenic interferences with the climate system.

20. Correct Option: (a)

Explanation:

The United Nations Office for Disaster Risk Reduction (UNISDR)

- UNISDRwas created in December 1999. The successor to the secretariat of the International Decade for Natural Disaster Reduction was established to ensure the implementation of the International Strategy for Disaster Reduction.
- **UNISDR is part of the United Nations Secretariat and its functions span the social, economic, environmental as well as humanitarian fields.**
- **UNISDR supports the implementation, follow-up, and review of the Sendai Framework for Disaster Risk Reduction** adopted by the Third UN World Conference on Disaster Risk Reduction on 18 March 2015 in Sendai, Japan. The Sendai Framework is a **15-year voluntary, non-binding agreement** that maps out a broad, people-centered approach to disaster risk reduction, succeeding the 2005-2015 Hyogo Framework for Action.
- **UNISDR's vision is anchored on the four priorities for action set out in the Sendai Framework**: understanding disaster risk, strengthening disaster risk governance to manage disaster risk, investing in disaster risk reduction for resilience, and enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction.
- UNISDR informs and connects people by providing practical services and tools such as the risk reduction website- PreventionWeb, terminology, publications on good practices, country profilesandthe**GlobalAssessmentReport on Disaster Risk Reduction** which is an authoritative **biennial analysis of global disaster risks and trends.**

21. Correct option: (d)

Explanation

Nagpur resolution is to empower the citizens by policy interventions for better service delivery through timely updation of citizen's charters, implementation of enactments and benchmarking standards for continuous improvement.

Supplementary notes

'Nagpur Resolution: A Holistic approach for empowering citizens'

- The conference was organised by the Department of Administrative Reforms and Public Grievances (DARPG), Government of India, in collaboration with the Government of Maharashtra and the Maharashtra State Commission for Right to Public Services.
- Positive approach, transparency, corruption-free system, fast track decision making and social sensitivity are essential to good governance.
- Performance audit of public servants should be done at regular intervals.
- The Conference also resolved to adopt a holistic approach of systemic public grievance reforms through improved mapping, formulation of monitoring matrix, data collection and evaluation in quality of grievance redressal, and to provide an enabling environment for States and Ministries/Departments of the Government of India for creating web portals and to adopt a holistic approach for improved service delivery through digital platforms.
- The Resolution focuses on dynamic policy making and strategic decisions, monitoring of implementation, appointment of key personnel, coordination and evaluation, and achieving a sense of common identity by exchange of technical expertise in the areas of Improved Service Delivery between paired States under the Ek Bharat Shreshtha Bharat Program.
- To empower the citizens by policy interventions for better service delivery through timely updation of citizens charters, implementation of enactments and benchmarking standards for continuous improvement;
- To empower citizens by adopting a bottom-up approach to bring massive improvements in quality of grievance redressal and reduction in timelines of grievance redressal;
- To adopt a holistic approach of systemic public grievance reforms through improved mapping, formulation of monitoring matrix, data collection and evaluation in quality of grievance redressal;
- To provide an enabling environment for States and Ministries/ Departments of the Government of India for creating web portals and to adopt a holistic approach for improved service delivery through digital platforms;
- To focus on dynamic policy making and strategic decisions, monitoring of implementation, appointment of key personnel, coordination and evaluation;
- To achieve a sense of common identity by exchange of technical expertise in the areas of Improved Service Delivery between the paired States under the Ek Bharat – Shresht Bharat Program;
- To work towards long-term engagements in the areas of Improved Service Delivery for Empowering Citizens through greater cooperation between the DARPG and the participating States and,
- To ensure timely publication of Good Governance Index to identify the quality of governance in 10 sectors especially those pertaining to welfare and infrastructure at the Union, State and District levels.

22. Correct option: (b)

Explanation

Statement 1 is incorrect: Prime Minister honoured the contribution of former Prime Minister AtalBihari Vajpayee by naming the Strategic Tunnel under Rohtang Pass after him.

Statement 3 is incorrect: It will reduce the distance between Manali and Leh by 46 kilometres and save crores of rupees in transport costs.

Supplementary notes

Rohtang Tunnel

- The historic decision to construct a strategic tunnel below the Rohtang Pass was taken on June 03, 2000, when late AtalBihari Vajpayee was the Prime Minister.
- The foundation stone for the Access Road to the South Portal of the tunnel was laid on May 26, 2002.

How long is the tunnel, and what is special about it?

- Upon completion, the 8.8 km-long tunnel will be the world's longest highway tunnel at an altitude of above 10,000 feet (3,000 metres).
- It is a 10.5 m-wide single tube, a bi-lane tunnel with a fireproof emergency tunnel built into the main tunnel itself. The 10.5-m width includes a 1-metre footpath on both sides.
- Vehicles will travel at a maximum speed of 80 km per hour inside the tunnel. Up to 3,000 cars and 1,500 trucks are expected to use the tunnel every day.
- It will reduce the distance between Manali and Leh by 46 kilometres and save crores of rupees in transport costs.
- It will also provide all-weather connectivity to remote border areas of Himachal Pradesh and Ladakh, which otherwise remained cut off from the rest of the country for about six months.
- The project has significant strategic implications for the military. Once the tunnel is operational, the forces will have access beyond the Rohtang Pass even in peak winter.
- The tunnel is now nearing completion and is a step in the direction of providing all weather connectivity to remote border areas of Himachal Pradesh and Ladakh which otherwise remained cut off from the rest of the country for about six months during winters.
- While Rohtang Pass is at a height of 13,050 feet, the pass on the road to Leh is Baralacha La at 16,040 feet. A 13.2-km long tunnel would be required to bypass this pass.
- An alternative road link to Ladakh has also been developed by BRO on the Darcha-Padam-Nimu axis, but here again; a 4.15 km-long tunnel at Sinka La Pass (16,703 feet) would be required for all-weather access.

23. Correct option: (c)

Explanation

Supplementary notes

JCPOA

- Joint Comprehensive Plan of Action (JCPOA): JCPOA is also known as the "Iran deal" or "Iran nuclear deal".
  - ➤ The deal was made in July 2015.
  - ➤ It is an agreement on Iran's nuclear program made between Iran, the P5+1 (the five permanent members of the United Nations Security Council—China, France, Russia, United Kingdom, United States—plus Germany) and the European Union.
  - ➤ JCPOA limits Iran's uranium enrichment programme until 2030 and contains monitoring and transparency measures that will remain in place long after that date.
  - ➤ A few days after the JCPOA was agreed, it was endorsed by the United Nations Security Council (UNSC).
- However, in May 2018, United States announced its withdrawal from JCPOA.

Why did US withdraw from JCPOA?

- United States cited major flaw in JCPOA's temporary nature and its lack of controls on Iran's ballistic missile programme.
- Mr. Trump was also highly critical of Iran's actions in Syria and elsewhere in the region, which he characterizes as Iran's 'malign behaviour'.

Concern due to US's withdrawal

- Supporters: American conservatives in the United States, Israel, Saudi Arabia and allies have supported the move.
- IAEA concern: By all accounts, Iran was honouring its provisions. Leading up to United States' withdrawal, the IAEA asserted that its inspectors had verified that Iran had implemented its nuclear-related commitments since the agreement.
- Politically motivated: Rather than an evidence-based technical objection to the agreement or its implementation, the US decision to withdraw from JCPOA seems to be a political measure aimed against Iran.
- Impact on Iran: The withdrawal caused concerns in Iran due to its impact on Iran's economy caused by US sanctions.
- Undermines multilateral diplomacy:It undermines the value of multilateral diplomacy and raises questions about the sanctity and sustainability of interstate agreements. Furthermore, it challenges the authority of UNSC which had unanimously passed a resolution endorsing the JCPOA, and had called on all UN member states as well as regional and international organizations to take action to support the agreement's implementation.

- US withdrawal from JCPOA risks seriously weakening trust and confidence in international institutions and arrangements that are essential parts of the global security architecture.

- Undermines nuclear non-proliferation: US action undermines the global effort for nuclear non-proliferation by sabotaging an important and effective anti-proliferation agreement.
  - By exiting JCPOA, the US has heightened risks stemming from Iran.
  - Due to a multi-pronged effect on other parties, this can trigger a preventive race to acquire nuclear weapons.
- Europe's stand: European Commission announced its intention to implement the blocking statute of 1996 to declare the US sanctions against Iran illegal in Europe and ban European citizens and companies from complying with them.
- The commission also instructed the European Investment Bank to facilitate European companies' investment in Iran.

24. Correct Answer: (A)

Explaination: Option (A) is correct

Supplementary Notes

- The demand of collegium system was first raised in 1990 when the Dinesh Goswami Committee suggested the need for a selection committee or a panel to appoint the CEC (at that time ECI was a single-member body).
- Based on this recommendation, 70th Constitutional Amendment Bill, 1990 was introduced in the Parliament which demanded for the selection committee comprising of the Presiding Officers of both Houses and Leader of the Opposition in Lok Sabha.
- However, due to lack of political will, it was not passed and was withdrawn in 1993. Till date, no such bill was formed.
- The issue was debated in the Constituent Assembly which finally left over to the government to decide the appointments. The constituent Assembly suggested that election commission should be appointed after a proposal of the same is supported by two-third majority of the parliament.
- Global Practice: In the USA, South Africa, Canada, etc. there is a mechanism for outside consultation with expert body for making suitable appointments.
- Recently, the Supreme Court has agreed to hear a public interest litigation seeking that the chief election commissioner and election commissioners be appointed by a three-member collegium.
- The collegium will comprise the Prime Minister, the leader of opposition in Lok Sabha and the Chief Justice of India. A bench comprising Chief Justice S. A. Bobde and Justices B.R. Gavai and Surya Kant took note of submissions that the plea needed an urgent hearing. Advocate AshwiniUpadhyay filed the PIL seeking to ensure more autonomy for the chief election commissioner's office and election commissioners. The plea has also sought an independent secretariat for the Election Commission of India and that it should also be given the power to make rules.
- The Election Commission of India (ECI) is an autonomous constitutional authority responsible for administering Union and State election processes in India.
- The body administers elections to the Lok Sabha, Rajya Sabha, State Legislative Assemblies, and the offices of the President and Vice President in the country.
- Structure of the Commission
  - Originally the commission had only one election commissioner but after the Election Commissioner Amendment Act 1989, it has been made a multi-member body.
  - The commission presently consists of one Chief Election Commissioner (CEC) and two Election Commissioners (ECs).
  - The secretariat of the commission is located in New Delhi.

25. Correct option: (d)

Explanation

All the statements are correct: The Union Cabinet chaired by Prime Minister has approved to create the post of Chief of Defence Staff in the rank of a four-star General with salary and perquisites equivalent to a Service Chief. The Chief of Defence Staff will also head the Department of Military Affairs (DMA), to be created within the Ministry of Defence and function as its Secretary.

Chief of Defence Staff

- The Chief of Defence Staff, apart from being the head of the Department of Military Affairs, will also be the Permanent Chairman of the Chiefs of Staff Committee.
- He will act as the Principal Military Adviser to RakshaMantri on all tri-Services matters. The three Chiefs will continue to advise RM on matters exclusively concerning their respective Services.
- CDS will not exercise any military command, including over the three Service Chiefs, so as to be able to provide impartial advice to the political leadership.
- The following areas will be dealt by the Department of Military Affairs headed by CDS:
  - The Armed Forces of the Union, namely, the Army, the Navy and the Air Force.
  - Integrated Headquarters of the Ministry of Defence comprising Army Headquarters, Naval Headquarters, Air Headquarters and Defence Staff Headquarters.
  - The Territorial Army.
  - Works relating to the Army, the Navy and the Air Force.
  - Procurement exclusive to the Services except capital acquisitions, as per prevalent rules and procedures.
- Apart from the above, the mandate of the Department of Military Affairs will include the following areas:
  - Promoting jointness in procurement, training and staffing for the Services through joint planning and integration of their requirements.
  - Facilitation of restructuring of Military Commands for optimal utilisation of resources by bringing about jointness in operations, including through establishment of joint/theatre commands.
  - Promoting use of indigenous equipment by the Services
- As the Permanent Chairman of Chiefs of Staff Committee, CDS will perform the following functions:
  - CDS will administer tri-services organisations. Tri-service agencies/ organisations/commands related to Cyber and Space will be under the command of the CDS.
  - CDS will be member of Defence Acquisition Council chaired by RakshaMantri and Defence Planning Committee chaired by NSA.
  - Function as the Military Adviser to the Nuclear Command Authority.
  - Bring about jointness in operation, logistics, transport, training, support services, communications, repairs and maintenance, etc of the three Services, within three years of the first CDS assuming office.
  - Ensure optimal utilisation of infrastructure and rationalise it through jointness among the services.
  - Implement Five-Year Defence Capital Acquisition Plan (DCAP), and Two-Year roll-on Annual Acquisition Plans (AAP), as a follow up of Integrated Capability Development Plan (ICDP).
  - Assign inter-Services prioritisation to capital acquisition proposals based on the anticipated budget.
- Bring about reforms in the functioning of three Services aimed at augmenting combat capabilities of the Armed Forces by reducing wasteful expenditure.

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TEST
DAY - 42

Time Allowed: 30 mins **Maximum Marks: 50**

1. Recently, India became the first country that launched a program to replace LPG as cooking fuel. Which of the following statements is/are correct in this regard?

1. The LPG will be replaced by Methanol as the fuel.
2. Sikkim became the first state to launch a program to replace LPG as cooking fuel.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

2. Which of the following statements is correct regarding the "sovereign blue bond"?

1. It has been developed by the support of the World Bank and Global Environment Facility
2. The blue bond is inspired by the green bond concept.
3. Recently, India became the first nation to launch such a bond.

Select the correct option using the codes given below:

(a) 2 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

3. Which of the following statements regarding the Ocean Clean Up Project is/are correct?

1. It has been initiated by Greenpeace International.
2. The prime focus of this project is to clean up the harmful algal boom across the oceans.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

4. Consider the following statements:

1. Abdul Ghani has planted close to 50 lakh trees as part of the GreenKalam initiative.
2. He is known as the Green Man of India.
3. Recently, he has started the Tree Ambulance program in Chennai.

Select the correct option using the codes given below:

(a) 2 and 3 only

(b) 3 only

(c) 1 and 2 only

(d) 1, 2 and 3

5. Consider the following statements regarding the International Conference on Status and Protection of Coral Reefs (STAPCOR – 2018):

1. It was the first STAPCOR conference in India.
2. It was organized at the Bangaram coral Island of Lakshadweep.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

6. Which of the following species will be forwarded by India to include in the global conservation list during the upcoming Conference of Parties (COP) of the Convention on the Conservation of Migratory Species of Wild Animals?

1. Amur Falcon
2. Asian Elephant
3. Gibi
4. Dugong

Select the correct option using the codes given below:

(a) 1 and 4 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, 3 and 4

7. Consider the following statements regarding Solar Charkha Mission:

1. It is an initiative to boost the rural economy and help in arresting migration from rural to urban areas.
2. It will be implemented by the National Bank for Agriculture and Rural Development.

Which of the above statements is/are correct?

(a) 1 only

(b) the only

(c) Both 1 and 2

(d) Neither 1 nor 2

8. Which of the following statements is/ are correct?

1. The Keeling Curve is used for the measurement of Carbon dioxide only.
2. It is measured at the only observatory in Mauna Loa, Hawaii.
3. There is a continuous diurnal variation in the concentration of Carbon dioxide as recorded by the Graph.

Select the correct option using the codes given below:

(a) 2 and 3 only

(b) 3 only

(c) 1 and 2 only

(d) 1, 2 and 3

9. Which of the following are related to the United Nations Office for Disaster Risk Reduction?

1. Sendai Framework
2. Hyogo Framework
3. Sasakawa Award

Select the correct option using the codes given below:

(a) 1, 2 and 3

(b) 2 and 3 only

(c) 3 only

(d) 1 and 2 only

10. Consider the following statements:

1. This species is endemic to the Palghat gap in Kerala.
2. It is believed to be called 'living fossil'.
3. Recently, it has been declared as Kerala's state amphibian.

Which of the following species is being described by the above statements?

(a) Cricket frogs

(b) Purple frog

(c) Red frogs

(d) Rice frogs

11. Climate Change Performance Index is published jointly by which of the following institutes?

1. NewClimate Institute
2. Climate Action Network
3. Germanwatch
4. UN Environment

Select the correct option using the codes given below:

(a) 1 and 2 only

(b) 3 and 4 only

(c) 1, 2 and 3 only

(d) 1, 2, 3 and 4

12. Which of the following statements regarding the Global Climate Risk Index 2020 are correct?

1. It has been published by Climate Action Network International.
2. According to this report, India has recorded the highest number of fatalities due to climate change in 2018.
3. As per the report, Japan is the worst affected country.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

13. A Joint Conference of Parties (CoP) to the BRS (Basel, Rotterdam, and Stockholm) Conventions was recently held in Geneva. Consider the following statements in this regard:

1. Parties to the Basel Convention included plastic wastes in the Prior Informed Consent (PIC) procedure.
2. New chemicals were listed under both the Rotterdam and Stockholm Conventions.
3. India had major reservations regarding the adoption of technical guidelines on environmentally sound management of electrical and electronic wastes.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

14. With reference to a Special Report on Climate Change and Land as seen in the news recently, consider the following statements:

1. It is published by the Intergovernmental Panel on Climate Change (IPCC).
2. The report claims that global food wastage is also a contributor to climate change.
3. As per the report, land degradation is both the cause and consequence of climate change.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

15. India recently launched Sustainable Livelihoods and Adaptation to Climate Change (SLAAC) to improve the adaptive capacity of rural poor to climatic vulnerability. In this regard, consider the following statements about SLAAC:

1. It is a first of its kind initiative aiming to create a cadre of climate-smart community resource persons in villages.
2. The project has been launched as a part of the National Rural Livelihood Mission (NRLM).
3. SLAAC is funded by the Green Climate Fund.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) 1 and 2 only

(d) 2 and 3 only

16. The Hindu Kush Himalaya (HKH) region Assessment report reveals that more than 35% of the glaciers in the region could retreat by 2100. In light of this report, consider the following statements:

1. This report has been released by the Indian Mountaineering Foundation.
2. The warming of this region is a positive change for agriculture.
3. The number of glaciers in the Himalayan area has increased due to global warming.

Which of the above statements is/are ***incorrect***?

(a) 1 only

(b) 1 and 3 only

(c) 1 and 2 only

(d) 2 and 3 only

17. With reference to the SAMOA Pathway, consider the following statements:

1. It articulates the sustainable development pathways and aspirations for Small Island Developing States (SIDS).
2. Social Development and Women's Empowerment is one of the priority areas under it.
3. SIDS is characterized by a narrow export base.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

18. Which among the following is correct regarding the 'Real-Time National Ambient Noise Monitoring Network'?

(a) It has established by Central Pollution Control Board in association with state pollution control boards.

(b) In the first phase, it will cover all the metropolitan cities.

(c) In the second phase, it will cover Kanpur, Surat, and Bhopal.

(d) None of the above

19. Which of the following is *incorrect* regarding the Green Skill Development Programme?

(a) It aims to train over 5.5 lakh workers in the environment and forest sectors in the country through 30 courses by 2024.

(b) Botanical Survey of India and Zoological Survey of India were the nodal Centres for the pilot programme.

(c) It is being implemented by utilising the vast networks and expertise of ENVIS Hubs.

(d) None of the above

20. Consider the following statements with respect to the Green Muffler:

1. Green Mufflers are barriers grown near noisy places to reduce the impact of noise.
2. Under the Green Muffler scheme, Asoka and Neem plants are planted near the house or resident localities to reduce noise pollution.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

21. With reference to Sugamya Bharat Abhiyan, consider the following statements

1. The campaign aims at providing equal opportunity to persons with disabilities to participate in all the aspects of life and live independently.
2. India is not a signatory to the UN Convention on the Rights of Persons with Disabilities (UNCRPD).

Which of the following statements is/are correct?

(a) 1 only

(b) 2 and 3 only

(c) 3 only

(d) 1, 2 and 3

22. Consider the following statements regarding recently unveiled India's First CNG Bus which can run 1000 Kms in one fill,

1. The project has been executed by Indraprastha Gas Limited (IGL).
2. It has been has been achieved through pioneering design of Type IV Composite Cylinders in buses, replacing traditional very heavy Type-I Carbon Steel cylinders.

Which of the following statement is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

23. Consider the following statements regarding AtalBhujalYojana (ATAL JAL),

1. It is a Central Sector Scheme.
2. It will be implemented over a period of 5 years (2020-21 to 2024-25)
3. The scheme aims to improve ground water management.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

24. Consider the following statements regarding Quick Reaction Surface to Air Missile (QRSAM) system,

1. It is developed by Defence Research and Development Organization (DRDO).
2. It failed flight test when conducted from Integrated Test Range, Chandipur.
3. The system is compact with minimum number of vehicles for a firing unit.

Which of the following statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 1 and 3 only

(d) 1, 2 and 3

25. Consider the following statements regarding NPR - National Population Register

1. The database will have demographic details.
2. NPR is to create a comprehensive identity database of every "usual resident" of the country.
3. The process of updating NPR will be carried out under the aegis of the Registrar General and ex-Officio Census Commissioner.

Choose the correct option from the following

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

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ANSWER HINTS

DAY - 42

1. Correct Option: (a)

Explanation:

"Methanol Cooking Fuel Program" of India

- NITI Ayog on October 5, 2018, launched this program in Assam. **Thus, Assam became the first state in India to do this.**
- Although China and African nations use methanol as a cooking fuel, India is the first country where the focus is on replacing LPG.
- The target is to feed methanol to the Northeast first, and then to the rest of India.
- It will save money for households and reduce oil imports.

2. Correct Option: (b)

Explanation:

Sovereign blue bond

- The blue bond is a debt instrument issued by governments, development banks or others to raise capital from impact investors to finance marine and ocean-based projects.
- The blue bond is inspired by the green bond concept.
- The sovereign blue bond was issued with a ceiling value of US$15 million, with a maturity of 10 years. The blue bond, as well as the program of marine and ocean-related activities it will support, was prepared with assistance from the **World Bank and the Global Environment Facility.** This support includes a partial World Bank guarantee ($5 million) and a concessional loan from the Global Environment Facility ($5 million), which will partially subsidize payment of the bond coupons.
- **The first such bond has been launched by Seychelles.**
- The main beneficiaries are Seychellois whose livelihoods depend on marine resources and the ocean. This includes artisanal and semi-industrial fishers, operators in tourism and seafood value chains, including aquaculture; national and local institutions engaged in the management of marine resources, including fishers' associations and government entities. Ultimately, the general population will benefit from a healthier marine environment and increased food security.

3. Correct Option: (d)

Explanation:

Ocean Clean Up Project

- **This project has been initiated by Ocean Cleanup which is a non-governmental organization, based in the Netherlands.**
- **The prime focus is to develop and implement advanced technologies to get rid of the plastic pollution in the oceans.**
- It has been started in the Pacific Ocean to extract Plastic Pollution.

4. Correct Option: (d)

Explanation:

- K Abdul Ghani has planted close to 50 lakh trees by himself and many more lakh's as part of the GreenKalam initiative. Recently, he has started the Tree Ambulance program in Chennai.
- For this, he is known as the Green Man of India.
- Salim Ali was an Indian ornithologist and naturalist. He was the first Indian to conduct systematic bird surveys across India and wrote several bird books that popularized ornithology in India. He is known as the birdman of India.

- Rajendra Singh is an Indian water conservationist and environmentalist, known as the waterman of India.

5. Correct Option: (c)

Explanation:

STAPCOR-2018

- The International Conference on Status and Protection of Coral Reefs (**STAPCOR – 2018**) with the theme "**Reef for Life**" was inaugurated by the Union Minister of Environment, Forest and Climate Change on 22nd October at **Bangaram coral Island of Union Territory of Lakshadweep.**
- **It was the 3rd such conference after 1998, and 2008, but first in India.**
- The Department of Environment and Forest, Union Territory of Lakshadweep Administration organized this mega conference with the technical support of Zoological Survey of India and in association with Ministry of Environment, Forest and Climate Change, IUCN, ENVIS in consonance with declaration of the year 2018 as 3rd decadal International year of Reefs.
- Very soon, an International Atoll Research Centre will be established in Lakshadweep.

6. Correct Option: (b)

Explanation:

13th COP to the CMS

- The 13th Conference of Parties (COP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), an environmental treaty under the aegis of the United Nations Environment Programme, is going to be hosted by India during 17th to 22nd February 2020 at Gandhinagar in Gujarat. India has been designated the President of the COP for the next three years.
- The Government of India has been taking necessary actions to protect and conserve migratory marine species.
- Seven species that include Dugong, Whale Shark, Marine Turtle (two species), have been identified for the preparation of the Conservation and Recovery Action Plan.
- The theme of CMS COP13 in India is, "Migratory species connect the planet and we welcome them home. "The CMS COP 13 logo is inspired by 'Kolam', a traditional art form from southern India. In the logo of CMS COP-13, Kolam art form is used to depict key migratory species in India like Amur falcon, humpback whale and marine turtles.
- **India will be moving to include the Asian Elephant and the Great Indian Bustard (Gibi) in the global conservation list- the list of species that merit heightened conservation measures.**
- Having the elephant and the Great Indian Bustard in the list — more formally known as Appendix 1 — would coax countries neighboring India, where wild animals such as tigers and elephant foray into, to direct more resources and attention to protecting them. There are now 173 species in Appendix 1.
- The mascot for CMS COP13 is "Gibi - The Great Indian Bustard".

7. Correct Option: (a)

Explanation:

- It is a Ministry of Micro Small & Medium Enterprises (MSME) initiative launched during June 2018.
- **The Khadi and Village Industries Commission (KVIC) would implement the scheme.**
- The scheme envisages setting up of Solar Charkha Clusters which would mean a focal village and other surrounding villages in a radius of 8 to 10 kilometers. Further, such a cluster will have 200 to 2042 beneficiaries (spinners, weavers, stitches and other skilled artisans).
- Each spinner will be given two charkhas of 10 spindles each. On average, it is considered that such a cluster will have about 1000 charkhas. A cluster with full capacity will provide direct employment to 2042 artisans.
- The objectives of the Scheme are as follows-
  - To ensure inclusive growth by the generation of employment, especially for women and youth, and sustainable development through solar charkha clusters in rural areas.

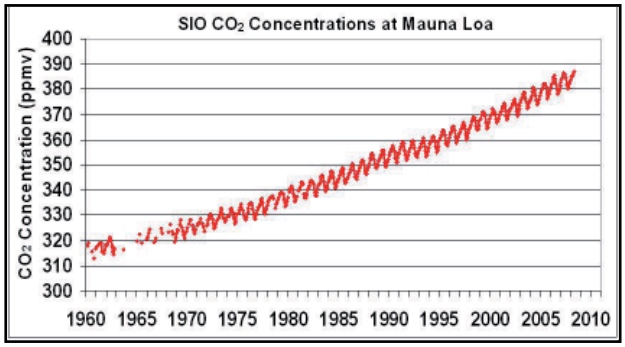
- **To boost the rural economy and help in arresting migration from rural to urban areas.**
- To leverage low-cost, innovative technologies and processes for sustenance.

8. Correct Option: (d)

Explanation:

Keeling Curve

- **The Keeling Curve is a graph of the accumulation of carbon dioxide in the Earth's atmosphere based on continuous measurements taken at the Mauna Loa Observatory in Hawaii from 1958 to the present day.**
- The curve is named for the scientist Charles David Keeling, who started the monitoring program and supervised it until his death in 2005.
- **The graph is about the continuous diurnal variation in the concentration of Carbon dioxide largely due to localized respiration/photosynthesis from plants.**



9. Correct Option: (a)

Explanation:

United Nations Office for Disaster Risk Reduction (UNDDR)

- UNDRR (formerly UNISDR) is the United Nations focal point for disaster risk reduction. **UNDRR oversees the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030**, supporting countries in its implementation, monitoring and sharing what works in reducing existing risk and preventing the creation of new risk.
- **The Sendai Framework for Disaster Risk Reduction 2015-2030** was adopted at the Third UN World Conference in Sendai, Japan, on March 18, 2015.
- **The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA)** 2005-2015: Building the Resilience of Nations and Communities to Disasters.
- The United Nations Sasakawa Award for Disaster Reduction is one of three prestigious prizes established in 1986 by founding Chairman of the Nippon Foundation, Mr. Ryoichi Sasakawa. It is the most prestigious international award in the area of Disaster Risk Management.

10. Correct Option: (b)

Explanation:

Purple frogs

- It is also known as Maveli frog or Pignose Frog.
- It is endemic to the Western Ghats around the Palghat gap in Kerala.
- **It can be called 'living fossil' as it is believed that they have co-existed with dinosaurs almost 70 million years ago.**
- It spends most of its lifecycle under the ground.

11. Correct Option: (c)

Explanation:

Climate Change Performance Index

- **The Climate Change Performance Index published by Germanwatch, Climate Action Network International and the New Climate Institute.**
- Published annually since 2005, the Climate Change Performance Index (CCPI) is an independent monitoring tool for tracking countries' climate protection performance. It aims to enhance transparency in international climate politics and enables a comparison of climate protection efforts and progress made by individual countries.
- On the basis of standardized criteria, the CCPI currently evaluates and compares the climate protection performance of 57 countries and of the European Union (EU), which are together responsible for more than 90% of global greenhouse gas (GHG) emissions. This year(2020) for the first time Chile, as the country holding the COP25 presidency, is added to the CCPI.
- India, for the first, time ranks among the top ten in this year's CCPI. The current levels of per capita emissions and energy use are still comparatively low and, along with ambitious 2030 targets, result in high ratings for the GHG Emissions and Energy

Use categories. While the country receives an overall medium rating in the Renewable Energy category, India's 2030 renewable energy target is rated very high for its well-below-2°C compatibility. National experts commend the government for strong policies to support the expansion of renewable energy, which is needed to meet the ambitious targets as recent renewable energy capacity additions are below the level required. Despite an overall high rating for its Climate Policy performance, experts point out that the government has yet to develop a roadmap for the phase-out of fossil fuel subsidies that would consequently reduce the country's high dependence on coal.

12. Correct Option: (b)

Explanation:

Global Climate Risk Index 2020

- The annually published by the Germanwatch, Global Climate Risk Index analyses to what extent countries have been affected by the impacts of weather-related loss events (storms, floods, heatwaves, etc).
- The **Germanwatch**Global Climate Risk Index is an analysis based on one of the most reliable data sets available on the impacts of extreme weather events and associated socio-economic data.
- This is the 15th edition of this annual analysis. Its aim is to contextualize ongoing climate policy debates – especially the international climate negotiations – looking at real-world impacts over the last year and the last 20 years.
- Japan, the Philippines, and Germany were the most affected countries in 2018 followed by Madagascar, **India (5th)** and Sri Lanka.
- The yearly monsoon season, lasting from June to September, severely affected India in 2018. The state of Kerala was especially impacted – 324 people died because of drowning or being buried in the landslides set off by the flooding, the worst in one hundred years. Over 220 000 people had to leave their homes, 20 000 houses and 80 dams were destroyed. The damage amounted to EUR 2.4 billion (US$ 2.8 billion). Furthermore, India's east coast was hit by the cyclones Titli and Gaja in October and November 2018. With wind speeds of up to 150 kilometers per hour, cyclone Titli killed at least eight people and left around 450 000 without electricity.
- **India has also recorded the highest number of fatalities due to climate change** and the second-highest monetary losses from its impact in 2018.

13. Correct Option: (d)

Explanation:

Joint Conference on BRS Conventions

- The joint meetings of three conventions on chemicals and waste that is the 14th meeting of the Conference of the Parties (COP) to **Basel Convention** on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal (COP 14) was held along with the 9th meeting of the COP to **Rotterdam Convention** on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the 9th meeting of the COP to **Stockholm Convention** on Persistent Organic Pollutants.
- The theme of the meetings this year was "**Clean Planet, Healthy People: Sound Management of Chemicals and Waste".**
- **The outcomes of the conference included:**
  - The establishment of a compliance mechanism under the Rotterdam Convention
  - **The listing of dicofol and perfluorooctanoic acid (PFOA), its salts, and PFOA-related compounds under the Stockholm Convention**
  - **Parties to the Basel Convention also adopted technical guidelines on environmentally sound management of electrical and electronic wastes (e-wastes) and also included plastic wastes in the PIC procedure.**
  - Under the Rotterdam Convention, two new chemicals (Phorate and HBCD) were added in the list for mandatory PIC procedure in international trade.
  - **India in Joint Conference**
  - The draft technical guidelines stipulated the conditions when used electrical and electronic equipment destined for direct reuse, repair, refurbishment or failure analysis should be considered as non-waste**. India had major reservations regarding these provisions as in the name of re-use, repair, refurbishment, and failure**

analysis there was a possibility of dumping from the developed world to the developing countries including India in view of the growing consumption of electronic equipment and waste across the world. The Indian delegation strongly objected to the proposed decision on these guidelines during plenary and did not allow it to be passed by the conference of the parties (COP).

- On the final day of the COP, a modified decision was adopted in which all the concerns raised by India were incorporated like recognition that the interim guideline has issues and further work is required especially on the provision on distinguishing waste from non-waste and the guidelines were adopted on an interim basis only.

14. Correct Option: (d)

Explanation:

Climate Change and Land

- **The IPCC approved and accepted Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems** at its 50th Session held on 2 – 7 August 2019.
- **This is the first time that IPCC has solely focused on the land sector.**
- The current report talks about the contribution of land-related activities to global warming — how the different uses of land, like agriculture, industry, forestry, cattle-rearing, and urbanization, was affecting emissions of greenhouse gases.
- An important part of the report talks about the manner in which even existential activities like food production contributes to global warming and is also affected by it.
- The report says that if pre-production activities like cattle rearing and post-production activities like transport, energy and food processing, is taken into account, then food production could contribute as much as 37 percent of all greenhouse gas emissions every year.
- **It points out that nearly 25 percent of all food produced is either lost or wasted. And even the decomposition of the waste releases emissions.**
- The report shows that sustainable land management including sustainable forest management can help reduce land degradation and also tackle climate change.
- Coordinated efforts to tackle climate change will also help improve land, food security, and nutrition, etc.
- Reducing over-consumption and waste of food, eliminating the clearing and burning of forests, preventing over-harvesting of fuelwood, and reducing greenhouse gas emissions will help to address land-related climate change issues.
- **Land-Climate Link:**
  - Land use and changes in land use have always been an integral part of the conversation on climate change. That is because land acts as both the source as well as a sink of carbon.
  - **Land Degradation is both the cause and consequence of climate change**.
  - Climate change causes the land to degrade through both gradual changes in temperature and rainfall patterns, as well as changes in the distribution and intensity of extreme events.
  - Degraded land is less productive which reduces its ability to absorb carbon thus exacerbating climate change.

15. Correct Option: (c)

Explanation:

Sustainable Livelihoods and Adaptation to Climate Change (SLACC)

- **The project is jointly initiated by the Union Ministry of Rural Development and the World Bank under National Rural Livelihood Mission (NRLM)** to improve the adaptive capacity of the rural poor, to climate variability and change affecting farm-based livelihoods, through community-based interventions.
- **SLACC targets to create a cadre of over 200 certified 'climate-smart' community resource persons in villages, who will help the rural population, cope with the impact of climate change.**
- The training programme of SLACC has been launched to help Rural Poor Farm-based Households adapt to Climate Change and sustain their livelihoods.
- The course throws light on climate change, variability, interventions that can help in improving crop productivity, information on

weather advisory services and alternative livelihood activities for climate resilience.

- This course is being offered by the Centre for Natural Resource Management of National Institute of Rural Development and Panchayati Raj (NIRDPR), which is also the Lead Technical Support Agency for the SLACC project.
- **The SLACC project is funded by the Special Climate Change Fund, which was set up under the United Nations Framework Convention on Climate Change to finance global projects relating to adaptation, technology transfer, and capacity building, among other areas**.
- The SLACC project is being implemented in convergence with the MahilaKisanSashaktikaranPariyojana, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and other Centrally-sponsored schemes.
- **A total of 638 drought and flood-prone villages of Madhya Pradesh and Bihar are being covered on a pilot basis under this first of its kind initiative. It will be scaled up nationwide in due course.**

16. Correct Option: (a)

Explanation:

Hindu Kush Himalaya (HKH) Assessment Report

- **International Centre for Integrated Mountain Development (ICIMOD), a regional intergovernmental body has released the first-ever assessment of climate change impacts on the Hindu Kush Himalayan (HKH) region.**
- The ICIMOD is pursuing 8 countries, including India, to set up an inter-governmental body to protect the Hindu Kush Himalayan region, known as the water tower of Asia.

Main findings of the report

- HKH region is warming faster than the global average. It would continue to warm through this century even if the world is able to limit global warming at the agreed 1.5 degrees Celsius.
- The per capita fossil fuel carbon dioxide emission from the HKH countries is one-sixth of the global average though it is disproportionately impacted.
- In the last 60 years, extreme cold events have become lesser while extreme warm weather events have become more pronounced. Both minimum and maximum temperatures are also changing: they are moving north, indicating overall warming.
- Every decade HKH loses one cold night and half a cold day. While warm nights have increased by 1.7 per decade, the region gets 1.2 warm days every decade.
- Alarmingly, changes in surface temperature (relative to 1976-2005) in this Himalayan region are higher than the global average, and even the South Asian region.
- The projected changes in the surface mean temperature over the HKH region is larger compared to the global mean change by the end of the 21st century.
- The **number of glaciers in the Himalayan areahas increased in the last five decades and this is an indicator of how severe glacier melting has been due to global warming.**
- **The increase in the number of glaciers is primarily due to glacier fragmentation** — that big ones are splitting into smaller ones. And this is happening due to consistent loss in areas the glaciers occupy.
- Smaller glaciers are shrinking faster than larger ones, although the smaller glaciers of Ladakh show a lower rate of a retreat than other Himalayan glaciers. However, the assessment makes clear that despite the surety of glaciers in the Hindu Kush Mountains losing length since 1973, no studies have been done to examine area change in this region.
- In 1998-2014, when global warming slowed down, this region continued to warm.
- In the 20th century, the HKH region oscillated between warming and cooling phases. In the first 40 years, it reported warming to be followed by a cooling phase in 1940-1970.
- However, since 1970 it has been warming, and as assessed, it would continue to be through the current century.
- **Warming may be good news for agriculture as the length of the growing season has increased by 4.25 days per decade — a positive change for agriculture.**

17. Correct Option: (d)

Explanation:

SAMOA Pathway

- The Third International Conference on Small Island Developing States was held from 1-4 September 2014 in Apia, Samoa.
- The Conference resulted in the adoption of the Small Island Developing States Accelerated Modalities of Action (or SAMOA) Pathway and the announcement of 300 multi-stakeholder partnerships in support of SIDS.
- **SAMOA Pathway articulates the sustainable development pathways and aspirations for SIDS over the next 10 years.**
- **There are 16 priority areas under the SAMOA Pathway. Some of them are:**
  - Sustained and sustainable, inclusive and equitable economic growth with decent work for all
  - Climate Change
  - Sustainable Energy
  - Disaster Risk Reduction
  - **Gender Equality and Women's Empowerment**
  - Biodiversity
  - **Social Development**
- It also established a unique intergovernmental SIDS Partnership Framework, designed to monitor the progress of existing and stimulate the launch of new, genuine and durable partnerships for the sustainable development of SIDS.
- On 27 September 2019, the General Assembly will hold a one-day high-level review of the progress made in addressing the priorities of Small Island Developing States (SIDS) through the implementation of the SAMOA Pathway.
- The General Assembly has decided that the high-level review will result in "a concise action-oriented and inter-governmentally agreed political declaration".

Small Island Developing States (SIDS)

- SIDS is a group of small island countries that are afflicted by economic difficulties and confronted by development imperatives similar to those of developing countries generally but have their own peculiar vulnerabilities and characteristics.
- The United Nations Conference on Sustainable Development (also known as Rio+20) that took place in Rio de Janeiro, Brazil in June 2012 recognize these vulnerabilities and characteristics as - their small size, remoteness, **narrow resource and export base**, and exposure to global environmental challenges and external economic shocks, including a large range of impacts from climate change and potentially more frequent and intense natural disasters.

18. Correct Option: (a)

Explanation:

Real-Time Ambient Noise Monitoring Network

- National Ambient Noise Monitoring Network Programme has been prepared and circulated to state pollution control boards. **Central Pollution Control Board in association with the state pollution control board established Real-Time National Ambient Noise Monitoring Network**.
- **It will cover seven metros in phase-I viz. Delhi, Hyderabad, Kolkata, Mumbai, Bangalore, and Chennai** have been selected and in each Metro five Remote Monitoring Terminals have been installed in different noise zones for continuous monitoring.
- In Phase-II, another 35 Noise Monitoring Stations will be installed in the same seven cities
- In Phase III, Real-Time Noise Network will be expanded by 90 stations to cover 18 other major cities by 2012. **Phase-III cities include Kanpur, Pune, Surat,** Ahmedabad, Nagpur, Jaipur, Indore, Bhopal, Ludhiana, Guwahati, Dehradun, Thiruvananthpuram, Bhubaneswar, Patna, Gandhinagar, Ranchi, Amritsar and Raipur.
- The network in the major Metros will also be augmented by establishing more noise monitoring stations.

19. Correct Option: (a)

Explanation:

Green Skill Development Programme

- It was launched in line with the Skill India programme for skilling India's youth in the environment and forest sector.
- It endeavours to develop green skilled workers having technical knowledge and

commitment to sustainable development, which will help in the attainment of the Nationally Determined Contributions (NDCs), SDGs, National Biodiversity Targets (NBTs), as well as Waste Management Rules (2016).

- **It aims to train over 5.5 lakh workers in the environment and forest sectors in the country through 30 courses by 2021.**
- **Botanical Survey of India and Zoological Survey of India were the nodal Centres for the pilot programme.**
- It provides gainful employment to candidates completing the course in the zoos/wildlife sanctuaries/national parks etc.
- **It is being implemented by utilising the vast networks and expertise of ENVIS Hubs.**

20. Correct Option: (c)

Explanation:

Green Muffler Scheme

- **Green Muffler** is a technique of **reducing noise pollution by planting 4-6 rows around the populated areas or noisy places** like along roadsides, industrial areas, societies near highways, etc. so that dense trees filter out the noise and obstruct reaching the citizens. It is also a device for decreasing the amount of noise emitted by the exhaust of an internal combustion engine.
- Under the Green Muffler scheme, **Asoka and Neem plants** are planted near the house or resident localities to reduce noise pollution.
- **Trees are known as noise buffers as they control noise pollution by absorbing high-frequency noise.** Even urban noises are muffled by trees just like stone walls. Evergreen shrubs that too with broader leaves provide year-round noise protection so, they are best to plant. Trees absorb sound waves with their branches and foliage. Plant trees with no space or less space are better efficient to reduce noise pollution.
- **According to USDA National Agroforestry Center** a properly designed buffer of trees and shrubs can reduce noise by about 10 decibels or about 50% as perceived by the human ear.

21. Correct option: (b)

Explanation

Statement 1 is incorrect: Breast Milk Banks are established under "National Guidelines on Establishment of Lactation Management Centres in Public Health Facilities" by the Ministry of Health and Family Welfare.

Supplementary notes

Accessible India Campaign (Sugamya Bharat Abhiyan)

- Accessible India Campaign (Sugamya Bharat Abhiyan) is a nation-wide Campaign launched by Department of Empowerment of Persons with Disabilities (DEPwD) of Ministry of Social Justice & Empowerment to provide universal accessibility to persons with disabilities.
- The campaign aims at providing equal opportunity to persons with disabilities to participate in all the aspects of life and live independently. The Sugamya Bharat Abhiyan focuses on developing accessible physical environment, transportation system and Information & communication ecosystem.
- The Government of India with firm commitment towards socio-economic transformation of the persons with disabilities is making efforts to create mass awareness for universal accessibility.
- India is a signatory to the UN Convention on the Rights of Persons with Disabilities (UNCRPD).

Components of Accessible India Campaign

Accessible India Campaign (Sugamya Bharat Abhiyan) has the following three important components

- Built Environment Accessibility
- Transportation System Accessibility
- Information and Communication Eco-System Accessibility

United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)

- To develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public;
- To ensure that private entities that offer facilities and services which are open or provided to the public take into account

all aspects of accessibility for persons with disabilities;

- To provide training for stakeholders on accessibility issues facing persons with disabilities;
- To provide in buildings and other facilities open to the public signage in Braille and in easy to read and understand forms;
- To provide forms of live assistance and intermediaries, including guidelines, readers and professional sign language interpreters, to facilitate accessibility to buildings and other facilities open to the public;
- To promote other appropriate forms of assistance and support to persons with disabilities to ensure their access to information;
- To promote access for persons with disabilities to new information and communications technologies and systems, including the Internet.

22. Correct option: (c)

Explanation

Statement 1 and 2 are correct: In a major step towards making India a gas-based economy and making CNG as the eco-friendly option for long distance transport in the country, Minister of Petroleum & Natural Gas and Steel, unveiled India's first long distance CNG bus fitted with composite CNG cylinders, which can travel around 1000 kms in a single fill.

The project has been executed by Indraprastha Gas Limited (IGL) and has been achieved through pioneering design of Type IV Composite Cylinders in buses, replacing traditional very heavy Type-I Carbon Steel cylinders.

Supplementary notes

- Mahindra &Mahindra,& Agility Fuel Solutions of USA have partnered with IGL for this project, involving introducing the new concept of light weight Type IV composite cylinders in buses. These cylinders are 70% lighter than the Type - I (all steel) cylinders which are being used in India currently.
- The main advantage of these Cylinders is that due to its lighter weight, the number of cylinders can be increased in the vehicle thus creating more storage capacity on-board. The buses which used to carry only 80-100 Kg of CNG with steel cylinders can carry 225-275 Kg of CNG with new composite cylinders.
- More storage of CNG means more KM range of buses. Buses fitted with Type IV Composite Cylinders have a running range of approx. 800- 1000 KM per fill of CNG.
- IGL has procured 5 number of Mahindra's Type IV buses. The Buses would be given to Uttarakhand Transport Corporation (UTC) on lease basis after the launch.
- These will ply on Inter-city routes from Delhi to Dehradun and will be the first CNG Buses in Uttarakhand. Now with this launch, DTC and other State Transport Corporations can again start their long haul operations through CNG Buses.
- In addition, with more capacity of CNG in one vehicle, it is likely that there shall be reduction in queues at the CNG Stations as these buses will not have to come frequently for fueling.
- Apart from purchasing new OEM manufactured Type IV buses, Fleet owners and State Transport Corporations also have the option of retrofitting their existing CNG buses having Type I (Steel Cylinders) with lightweight Type IV Cylinders. Retrofitting with Type IV CNG cylinders is also possible in buses running on other fuels.

23. Correct option: (d)

Explanation

All the statements are correct: The Union Cabinet chaired by the Prime Minister has given its approval for the implementation of the AtalBhujalYojana (ATAL JAL), a Central Sector Scheme with a total outlay of Rs.6000 crore to be implemented over a period of 5 years (2020-21 to 2024-25).

Supplementary notes

- Ground water contributes to nearly 65% of total irrigated area of the country and nearly 85% of the rural drinking water supply. The limited ground water resources in the country are under threat due to the increasing demands of growing population, urbanization and industrialization.
- Intensive, and unregulated ground water pumping in many areas has caused rapid and widespread decline in ground water levels as well as reduction in the sustainability of ground water abstraction structures.
- The problem of reduction in ground water availability is further compounded by deteriorating ground water quality in

some parts of the country. The increasing stress on ground water due to over-exploitation, contamination and associated environmental impacts threaten to endanger the food security of the nation, unless necessary preventive / remedial measures are taken on priority.

- The Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti has taken a pioneering initiative for ensuring long term sustainability of ground water resources in the country through the AtalBhujalYojana (ATAL JAL) by adopting a mix of 'top down' and 'bottom up' approaches in identified ground water stressed blocks in seven states, representing a range of geomorphic, climatic and hydrogeologic and cultural settings.
- ATAL JAL has been designed with the principal objective of strengthening the institutional framework for participatory ground water management and bringing about behavioral changes at the community level for sustainable ground water resource management.
- The scheme envisages undertaking this through various interventions, including awareness programmes, capacity building, convergence of ongoing/new schemes and improved agricultural practices etc.

ATAL JAL has two major components:

- Institutional Strengthening and Capacity Building Component for strengthening institutional arrangements for sustainable ground water management in the States including improving monitoring networks, capacity building, strengthening of Water User Associations, etc.
- Incentive Component for incentivising the States for achievements in improved groundwater management practices namely, data dissemination, preparation of water security plans, implementation of management interventions through convergence of ongoing schemes, adopting demand side management practices etc

ATAL JAL will result in:

- Institutional strengthening for improving ground water monitoring networks and capacity building of stakeholders at different levels which will enhance ground water data storage, exchange, analysis and dissemination.
- Improved and realistic water budgeting based on an improved database and preparation of community-led Water Security Plans at Panchayat level
- Implementation of Water Security Plans through convergence of various ongoing/ new schemes of the Government of India and State Governments to facilitate judicious and effective utilization of funds for sustainable ground water management.
- Efficient use of available ground water resources with emphasis on demand side measures such as micro-irrigation, crop diversification, electricity feeder separation etc.

Impact:

- Source sustainability for JalJeevan Mission in the project area with active participation of local communities.
- Will contribute towards the goal of doubling the farmers' income.
- Will promote participatory ground water management.
- Improved water use efficiency on a mass scale and improved cropping pattern;
- Promotion of efficient and equitable use of ground water resources and behavioural change at the community level.

24. Correct option: (C)

Explanation

Statement 2 is incorrect: Quick Reaction Surface to Air Missile (QRSAM) system developed by Defence Research and Development Organization (DRDO) was successfully flight-tested from Integrated Test Range, Chandipur off the Odisha coast at 1145 hrs on December 23, 2019.

Supplementary notes

Quick Reaction Surface to Air Missile (QRSAM) system

- They are developed by Defence Research and Development Organisation (DRDO).
- The missile has been flight-tested with full configuration in deployment mode intercepting the target mid-air, meeting the mission objectives.
- The system operates on the move, comprises of fully automated Command and Control System, Active Array Battery Surveillance Radar, Active Array Battery Multifunction Radar and Launcher.
- Both radars are four-walled having 360-degree coverage with search on move and track on move capability.
- The system is compact with minimum number of vehicles for a firing unit. Single

stage solid propelled missile has midcourse inertial navigation system with two-way data link and terminal active seeker developed indigenously by DRDO.

- The weapon system is expected to be ready for induction by 2021.

25. Correct option: (d)

Explanation

All the above statements are correct

Supplementary notes

NPR - National Population Register

- The Census Commission has said the objective of the NPR is to create a comprehensive identity database of every "usual resident" of the country.
- The database will have demographic details.
- A "usual resident", for the NPR, is a person who has lived in an area for at least six months or more, or a person who intends to live in an area for the next six months or more. It is mandatory for every "usual resident" of India to register in the NPR.
- The NPR, since it is linked to the Census, is seen as the first step towards a nationwide exercise to implement the National Register of Citizens (NRC).
- Though an NPR doesn't necessarily mean it's guaranteed there will be an NRC, it clears the path for a nationwide citizens' list.
- This is seen as one of the reasons why some states like West Bengal and Kerala, which are opposed to the NRC, have stopped work on the NPR.
- NPR was first done in 2010 and was later updated in 2015 when it was linked with the Aadhar.
- The NPR is a register of the usual residents of the country.
- It contains information collected at the local (village/sub-town), subdistrict, district, state and national level under provisions of the Citizenship Act, 1955 and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules, 2003.
- The process of updating NPR will be carried out under the aegis of the Registrar General and ex-Officio Census Commissioner, India.

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TEST

DAY - 43

Time Allowed: 30 mins **Maximum Marks: 50**

1. Which of the following statements is correct regarding the Brown to Green Report 2019?

(a) It is the comprehensive report of Greenfield and Brownfield projects.

(b) It is a review of the G20 climate action.

(c) It is a comprehensive study of the red tide.

(d) It is a comprehensive report by MoEFCC about the nature and impacts of brown carbon.

2. Which of the following statements regarding the Global Coalition for Disaster-Resilient Infrastructure is/ are correct?

1. It is a non-governmental coalition to prevent the loss of infrastructure.
2. The formation of the Coalition is the result of efforts by India and the United Nations Office for Disaster Risk Reduction.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

3. Consider the following statements regarding Atal Bhujal Yojana:

1. The Central Sector Scheme will be applied across all the states of India.
2. It will be supported by the Asian Development Bank.

Which of the above statements are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

4. Which of the following Indian companies is a part of 'Alliance to End Plastic Waste'?

(a) Tata Group

(b) Reliance Industries

(c) Pepsico

(d) All of the above

5. The Turtle Rehab Centre, which is the first of its kind, has been established in___

(a) Odisha

(b) Bihar

(c) West Bengal

(d) Andhra Pradesh

6. Consider the following statements?

1. Hydroponics is a method of growing plants without soil.
2. Aquaponics combines aquaculture and hydroponics.
3. In Aeroponics, very little water is needed.

Which of the above statements are correct?

(a) 1 and 3 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1, 2, and 3

7. Which of the following statements regarding the Vertical Farming are correct?

1. It is a type of urban farming.
2. It uses the same amount of water but the other raw materials consumed by vertical farming is less.
3. Vertical farm production is no longer dependent on using fossil resources.

Select the correct option using the codes given below:

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2, and 3

8. Consider the following statements regarding the Taj Trapezium Zone (TTZ):

1. It has been established in 2019.
2. It has been formed to protect the three World Heritage Sites of Agra.
3. The zone falls in Uttar Pradesh and Rajasthan only.
4. The construction, industrial activities and felling of trees are completely banned in the TTZ.

Which of the above statements are correct?

(a) 2 and 3 only
(b) 3 and 4 only
(c) 1, 3, and 4 only
(d) 2, 3, and 4 only

9. Which of the following statements regarding 'hydrochlorofluorocarbon (HCFC)-141 b' are correct?

1. It is used in foam manufacturing.
2. It does not contribute to ozone depletion, but, has a high global warming potential.
3. The Kigali Amendment to the Montreal Protocol has planned to phase down the substance worldwide.
4. India has achieved a complete phase-out of it.

Select the correct option using the codes given below:

(a) 1 and 4 only
(b) 2 and 3 only
(c) 1, 2 and 3 only
(d) 1, 2, 3 and 4

10. Which of the following statements regarding the Global Solar Council are correct?

1. It has been established under the aegis of the International Solar Alliance.
2. It was launched during the COP 21 Paris conference.
3. India is one of the principal members.

Select the correct option using the codes given below:

(a) 1, 2 and 3
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1 and 2 only

11. Around 73 countries have joined the Climate Ambition Alliance (CAA). Regarding this, consider the following statements:

1. It was launched at the 25th Conference of the Parties to the United Nations Framework Convention on Climate Change.
2. It has set the target to achieve the net zero carbon dioxide emissions by 2050.
3. It will focus on strong actions to improve the management of water and the sustainability of cities.

Which of the above statements are correct?

(a) 1, 2, and 3
(b) 1 and 3 only
(c) 1 and 2 only
(d) 2 and 3 only

12. India is one of the first countries in the world to develop a comprehensive Cooling Action plan. Regarding this, consider the following statements:

1. It will help in reducing both direct and indirect emissions
2. It will help in doubling the farmers income.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

13. Globally Important Agricultural Heritage Systems (GIAHS) was launched to create public awareness & safeguard world agricultural heritage sites. Which of the following sites finds its place in the GIAHS list from India?

1. Traditional Agriculture Systems Koraput, Odisha.
2. Kuttanad below Sea Level Farming System in Kerala.
3. Saffron Heritage of Pampore, Jammu & Kashmir.

Select the correct answer using the code given below:

(a) 1 and 2 only

(b) 1 and 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

14. Brazzaville declaration is in relation to:

(a) BRICS Summit

(b) Conserve terrestrial, marine and avian migratory species throughout their range.

(c) Protect the benefits provided by peatland ecosystems.

(d) Removal of non-tariff barriers for developing countries.

15. With reference to the Black Carbon Research Initiative, consider the following statements:

1. It is an Indian initiative launched as a part of the National Carbonaceous Aerosols Program (NCAP).
2. It is to monitor the black carbon aerosols and assess its impacts on the microclimates.
3. Ministry of Earth Sciences, Indian Space Research Organization Ministry of Environment and Department of Science and Technology are implementing agencies of this programme.

Which of the above statements is/are correct?

(a) 1 and 2 only

(b) 1 only

(c) 2 and 3 only

(d) 1, 2 and 3

16. Consider the following statements with reference to Solar Geo-Engineering frequently seen in news:

1. It is a process through which the reflectivity of the Earth's atmosphere or surface is decreased to offset climate change.
2. Methods include marine cloud brightening and using mirrors in space.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

17. India has launched Fulbright - Kalam Climate Fellowship in association with which of the following nation?

(a) Russia

(b) United States of America

(c) France

(d) Germany

18. Consider the following statements regarding the National Biofuel Policy:

1. Rajasthan has become the first state to implement it.
2. India is the first country to have operated biofuel-powered flights.
3. The Spicejet biofuel flight was developed using Jatropha seeds, a third-generation biofuel.

Which of the above statements are *incorrect*?

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

19. The Supreme Court recently ordered the eviction of STs/OTFDs whose claims as forest dwellers have been rejected under the Forest Rights Act, 2006. In this regard, consider the following statements:

1. The symbiotic relationship between forests and forest-dwelling communities was first recognized under FRA, 2006.
2. As per the Forest Rights Act, 2006, Gram Panchayat determines the nature and extent of individual and community forest rights.
3. The Act provides for a right to intellectual property over traditional knowledge related to biodiversity.

Which of the above statements is/are correct?

(a) 1 and 2 only

(b) 2 only

(c) 3 only

(d) 2 and 3 only

20. With reference to the SAMOA Pathway, consider the following statements:

1. It articulates the sustainable development pathways and aspirations for Small Island Developing States (SIDS).
2. Social Development and Women's Empowerment is one of the priority areas under it.
3. SIDS is characterized by a narrow export base.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

21. Consider the following statements regarding World Trade Organization:

1. It came into existence as a result of Paraguay rounds of Negotiations held under General Agreement on Trade and Tariffs.
2. All decisions in WTO Ministerial are made by consensus
3. WTO provides detailed criteria for the classification of member countries into Developing, Developed and Least Developed nations.

Which of the statements given above is/are correct?

(a) 1 and 3 only

(b) 2 only

(c) 2 and 3 only

(d) 1, 2 and 3

22. Consider the following statements regarding Gallantary Awards in India:

1. Only Indian Navy, Army and Air Force personnel are eligible to receive these awards.
2. Mahavir Chakra is the highest level of Gallantary award instituted by the Government of India.
3. These awards announced twice in a year.

Which of the statements given above is/are correct?

(a) 1 only

(b) 3 only

(c) 1 and 3 only

(d) 1 and 2 only

23. Kajin Sara Lake is located in which neighbouring country of India?

(a) Nepal

(b) Bangladesh

(c) Sri Lanka

(d) Myanmar

24. Recently, a creature known as Tardigrade was discovered on an Israeli spacecraft. What is the unique characteristic of this creature?

(a) It changes its colour very frequently.

(b) It can survive in vacuum conditions

(c) It can kill almost all drug resistant bacteria

(d) None of the above

25. Arrange the following shrines of the Char Dham in the west to east order:

1. **Gangotri**
2. **Yamunotri**
3. **Kedarnath**
4. **Badrinath**

Select the correct answer using the code given below:

(a) **2-3-1-4**

(b) **3-2-4-1**

(c) **1-2-3-4**

(d) **4-3-2-1**

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ANSWER HINTS

DAY - 43

1. Correct Option: (b)

Explanation:

G20 Brown to Green Report 2019

- **The Brown to Green Report 2019 is the world's most comprehensive review of G20 climate action.**
- It provides concise and comparable information on G20 country mitigation action, finance, and adaptation.
- Developed by experts from 14 research organizations and NGOs from the majority of the G20 countries, the report covers 80 indicators. It informs policymakers and stimulates national debates.

2. Correct Optio: (b)

Explanation:

Global Coalition for Disaster-Resilient Infrastructure

- CDRI's mission is to rapidly expand the development of resilient infrastructure and retrofit existing infrastructure for resilience and to enable a measurable reduction in infrastructure losses.
- **The formation of the Coalition is the result of efforts by India and the United Nations Office for Disaster Risk Reduction**, responding to India's Prime Minister's call at the Asian Ministerial Conference on DRR for action to reduce damage to critical infrastructure.
- Developed through consultations with more than **35 countries,** CDRI envisions enabling measurable reduction in infrastructure losses from disasters, including extreme climate events. CDRI thus aims to enable the achievement of objectives of expanding universal access to basic services and enabling prosperity as enshrined in the Sustainable Development Goals, while also working at the intersection of the Sendai Framework for Disaster Risk Reduction and the Paris Climate Agreement.

3. Correct Option: (d)

Explanation:

Atal Bhujal Yojana

- The **World Bank-supported**, Atal Bhujal Yojana (ABHY) is an Rs.6000 Crore scheme, for sustainable management of groundwater with community participation. It will be implemented by the Ministry of Jal Shakti.
- The government of India has identified over-exploited (OE) and water-stressed areas for the implementation of the scheme fall in the **seven states viz. Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh including the nine blocks of poverty-ridden Bundelkhand region.**
- **The funding pattern is 50:50 between Government of India and the World Bank.**

4. Correct Option: (b)

Explanation:

Alliance to End Plastic Waste

- It is a not-for-profit organization, partnering with the finance community, government and civil society, including environmental and economic development NGOs working to make the dream of a world without plastic waste a reality.
- The only Indian company as a partner to this Alliance is the Reliance Industries

5. Correct Option: (b)

Explanation:

Freshwater turtles rehab center

- A first-of-its-kind rehabilitation center for freshwater turtles will be inaugurated

in **Bihar's Bhagalpur** forest division in January 2020.

- The rehab center, spread over half a hectare, will be able to shelter 500 turtles at a time.
- The need to build such a center was felt after several turtles were found severely wounded and sick when rescued from smuggles by rescue teams.

6. Correct Option: (d)

Explanation:

New mode of agriculture

- Hydroponics is a predominant system of growth that involves the growth of plants in solutions of nutrients **that are essentially free of soil**. In this vertical farming innovation, the roots of the plants are submerged in a solution of nutrients. This is frequently circulated and monitored in order to ensure that there is the maintenance of the correct chemical composition in the nutrient solution.
  - Aquaponics is a symbiotic integration of two mature disciplines: **aquaculture and hydroponics.** It is much like the Hydroponics System but is only better. It aims to combine the fish and plants in the same ecosystem.
- Aeroponics is defined as "growing plants in an air/mist environment with no soil and **very little water**.

7. Correct Option: (c)

Explanation:

Vertical Farming

- Vertical Farming or vertical agriculture facilitates viable agricultural production inside buildings, in the metropolitan areas of our cities. **Vertical Farming is, therefore, a form of urban agriculture.**

- A Vertical Farm:
  - ➤ drastically reduces agricultural land use**.**
  - ➤ **saves up to 95% water.**
  - ➤ makes cultivation possible, independent of weather conditions & season.
  - ➤ delivers each harvest with continuous quality.
  - ➤ brings maximum freshness into the city.
  - ➤ saves on transport to the consumer.
  - ➤ limits CO_2 and puts less strain on the climate.
  - ➤ brings agriculture back into urban everyday life.
- **The primary focus of all functions in and around vertical farming is on optimal plant growth while maximizing the use of natural resources, such as the sunlight. With adaptation of nano cost climate control, low-carbon electricity, high-efficiency lighting, vertical farming achieves a low carbon footprint easily. This is why a vertical farm production is no longer dependent on using fossil resources.**

8. Correct Option: (a)

Explanation:

Taj Trapezium Zone (TTZ)

- Taj Trapezium Zone (TTZ) is a defined area of 10,400 sq km around the Taj Mahal to protect the monument from pollution.
- The TTZ **was established on December 30, 1996**, after the ruling of the Supreme Court.
- **The Court banned the use of coal/ coke in industries located in the TTZ with a mandate for switching over from coal/ coke to natural gas**, and relocating them outside the TTZ or shutting down.
- Recently, in December 2019, the Supreme Court lifted its earlier interim order imposing a complete ban on construction, industrial activities and felling of trees in the Taj Trapezium Zone (TTZ). But, the heavy industries will continue to be banned in the same way.
- **The TTZ comprises monuments including three World Heritage Sites the Taj Mahal, Agra Fort, and Fatehpur Sikri.** TTZ is so named since it is located

around the Taj Mahal and is shaped like a trapezoid.

- The geographical limits of the Taj Trapezium Zone is defined in the shape of trapezoid between 26° 45N & 77 ° 15E to 27 ° 45N & 77° 15E in the West of the Taj Mahal and in the East of Taj Mahal between 27° 00N & 78° 30E to 27° 30E, lying in the **Agra Division of the State of Uttar Pradesh and in the Bharatpur Division of the State of Rajasthan.**
- Responsibility areas:
  - ➤ Protecting Taj Mahal from damage via pollution
  - ➤ Control Pollution
  - ➤ Keep a record of the Taj Mahal pollution statics
  - ➤ Study city pollution

9. Correct Option: (a)

Explanation:

Hydrochlorofluorocarbon (HCFC)-141 b

- **India has successfully achieved the complete phase-out of Hydrochlorofluorocarbon (HCFC)-141 b**, which is a chemical used **by foam manufacturing enterprises** and **one of the most potent ozone-depleting chemicals after Chlorofluorocarbons (CFCs).**
- (HCFC)-141 b is used mainly as a blowing agent in the production of rigid polyurethane (PU) foams.

Hydrofluorocarbons

- Hydrofluorocarbons (HFCs) have been used since the early 1990s as an alternative to CFCs and HCFCs.
- **HFCs do not contribute to ozone depletion, but they are potent greenhouse gases.**
- **The Kigali Amendment to the Montreal Protocol has planned to phase down these substances worldwide.**

10. Correct Option: (c)

Explanation:

Global Solar Council

- **The International Solar Energy Society (ISES) is a founding member of the Global Solar Council, launched at the COP 21 climate change meeting in Paris.**
- It strives to convey 3 Key Messages about solar power viz. Solar power is already one of the cheapest forms of electricity globally; Solar power is everywhere, and alleviates poverty, especially in rural areas; and o avoid a greater than 2^0C increase in global temperatures, we must strongly accelerate the deployment of solar power.
- **The principal members of the Global Solar Council include Australia, China, Europe, India, and other Asian countries, Middle East, South America, and the US**.

11. Correct Option: (d)

Explanation:

Climate Ambition Alliance

- The alliance is led by Chile and was launched at **the Climate Action Summit, New York in 2019**.
- **At the COP25 to the UNFCCC, it was presented and around 73 countries have joined the Alliance.**
- Both Chile and the UK will work together to mobilize additional actors to join the alliance. They will also work towards COP26 that is to be held in November 2020 at Glasgow, UK.
- **The main purpose of the alliance is to upscale 2020 targets of members of the UN and to achieve Net Zero Carbon Emissions by 2050.**
- For mitigation, it will focus on the submission of enhanced Nationally Determined Contributions; reaching new commitments to achieve Net Zero by 2050; and the implementation of measures to strengthen the protection of forests and oceans.
- **For adaptation, it will focus on strong actions to improve the management of water, resilience in infrastructure and the sustainability of cities.**

12. Correct Option: (c)

Explanation:

India Cooling Action Plan

- India is one of the first countries in the world to develop a comprehensive Cooling Action plan which has a long term vision to address the cooling requirement across sectors and lists out actions that can help reduce the cooling demand.
- The India Cooling Action seeks to (i) reduce cooling demand across sectors by 20% to

25% by 2037-38, (ii) reduce refrigerant demand by 25% to 30% by 2037-38, (iii) Reduce cooling energy requirements by 25% to 40% by 2037-38, (iv) recognize "cooling and related areas" as a thrust area of research under national S&T Programme, (v) training and certification of 100,000 servicing sector technicians by 2022-23, synergizing with Skill India Mission. These actions will have significant climate benefits.

- The overarching goal of ICAP is to provide sustainable cooling and thermal comfort for all while securing environmental and socio-economic benefits for the society. **This will also help in reducing both direct and indirect emissions.**
- The following benefits would accrue to the society over and above the environmental benefits: (i) Thermal comfort for all – provision for cooling for EWS and LIG housing, (ii) Sustainable cooling – low GHG emissions related to cooling, (iii) **Doubling Farmers Income – better cold chain infrastructure – better value of produce to farmers, less wastage of produce,** (iv) Skilled workforce for better livelihoods and environmental protection, (v) Make in India – domestic manufacturing of air-conditioning and related cooling equipment's, (vi) Robust R&D on alternative cooling technologies – to provide push to innovation in cooling sector.

13. Correct Option: (d)

Explanation:

GIAHS

- GIAHS are the Globally Important Agricultural Heritage Systems (GIAHS) created to enhance public awareness, safeguard world agricultural heritage sites.
- It was started in 2002 by the FAO (Food and Agricultural Organization).
- FAO an intergovernmental organization, headquartered in Rome with 191 member nations. Aims at helping the world population get ensured food security, eliminate hunger, poverty.
- **Objectives of GIAHS**
  - To understand and appreciate the nature-friendly agricultural practices of local and tribal populations around the world.
  - To document indigenous knowledge.
  - To conserve and promote this knowledge at a global scale to promote food security, sustainable development.
  - Providing incentives for the local population by measures like eco-labeling, eco-tourism.
- **GIAHS Sites in India:** The following sites have been recognized.
  - Koraput, Odisha State:
    - This region has rich biodiversity, growing several varieties of paddy, millets, pulses, oilseeds, vegetables.
    - The region primarily a tribal district inhabited by khonds, bonda tribes practicing poddhu (shifting) cultivation.
    - Shifting cultivation – loss of forest cover = hurting the biodiversity.
    - Soil erosion, Soil degradation, habitat loss.
    - Illiteracy, large family, small farm holding size.
    - The socio-economic indicators are very poor here nearly 84% living in abject poverty.
- Kuttanad: Kuttanad is a delta region of about 900 sq. km situated on the west coast of Kerala State, India.
    - Unique feature: Below sea level rice cultivation site, only such a system in India.
    - Farmers of Kuttanad have developed and mastered the spectacular technique of below sea level cultivation over 150 years ago.
    - They made this system unique as it contributes remarkably well to the conservation of biodiversity and ecosystem services including several livelihood services for local communities.
- Kashmir Valley, Pampore region:
    - Saffron Heritage Site of Kashmir in India
    - Grains such as maize, rice, rajmah/ lentils, fruit and vegetable crops, and pulses.
    - A set of unique low-tillage traditional agricultural practices are carried

- During the fallow period, the growth of fruit, fodder and mulberry trees along the farm boundaries (Agro-forestry) is practiced, thereby maintaining traditional agro-biodiversity.

- What will GIAHS do in Indian Sites?
  - Contribute to awareness-raising
  - Promote the use of modern technologies to conserve heritage systems.
  - Documenting traditional knowledge.
  - Provide capacity building training for farmers to increase productivity and marketing practices.
  - Modernization, commercialization strategies establishing standards, eco-labeling.
  - Establishing sustainable practices amongst the tribals utilizing their knowledge, modern technologies.

14. Correct Option: (c)

Explanation:

Brazzaville Declaration

- Brazzaville Declaration was signed to **promote better management and conservation of Cuvette Central Region in the Congo Basin.** It aims to **implement coordination and cooperation between different government sectors to protect the benefits provided by peatland ecosystems.** It also recognizes the importance of the scientific breakthrough of mapping the world's largest tropical peatlands area **i.e. carbon stock and to prevent it from being emitted.**
- The declaration has been **signed by the Democratic Republic of Congo, the Republic of Congo and Indonesia** in the backdrop of the 3rd Conference of Partners of the Global Peatlands Initiatives (GPI), taking place in Brazzaville, Republic of Congo.
- GPI is an initiative by leading experts and institutions **to save peatlands as the world's largest terrestrial organ**.
- Peatlands are wetlands that contain a mixture of **decomposed organic material, partially submerged in a layer of water, lacking oxygen**. The complex biodiversity of peatlands means they are **home to a variety of species.** Their high carbon content makes them uniquely vulnerable to incineration if they are drained.
- They are a **globally important carbon store**. The unregulated exploitation of peatlands can potentially be detrimental to the environment and to climate, as it could release carbon emissions that have been locked in for millennia.

15. Correct Option: (d)

Explanation:

Black Carbon Research Initiative

- ISRO-GBP (Indian Space Research Organization's Geosphere-Biosphere Programme) recognized the importance of Black Carbon aerosols on the climate system and decided to pursue studies of Black Carbon in subsequent years.
- In view of this, a **multi-institutional and multi-agency Science Plan** has been launched in the **Ministry of Environment in association with the Ministry of Earth Sciences, Indian Space Research Organization, Ministry of Science and Technology and other associated agencies**, to **monitor aerosols and assess its impacts** through various modeling techniques.
- It is an Indian initiative **launched as a part of the National Carbonaceous Aerosols Program (NCAP)** under the aegis of the Indian Network for Climate Change Assessment, INCCA.

16. Correct Option: (b)

Explanation:

Solar Geo-Engineering/Solar Radiation Management (SRM)

- It is a process through which the **reflectivity (albedo) of the Earth's atmosphere or surface is increased**, in an attempt to offset some of the effects of GHG-induced climate change through anthropogenic intervention. The **technique mimics big volcanic eruptions** that can cool the Earth by masking the sun with a veil of ash or similar other things.
- Solar Radiation Management Governance Initiative **(SRMGI) is an international, NGO-driven project, financed by Dustin Moskovitz (co-founder of Facebook) for expanding the discussion of SRM climate engineering research governance to developing countries**.
- The Royal Society, The academy of sciences for the developing world) and Environmental Defence Fund (EDF) are its partners.

- The methods include:
  - **Space-Based Options/Space Sunshades** e.g. using mirrors in space, placing vast satellites at Lagrange Point 1, space parasol, etc.
  - **Stratosphere-Based Options** such as the injection of sulphate aerosols into the stratosphere.
  - **Cloud-Based Options/Cloud Seeding** e.g. Marine Cloud Brightening (by spraying a fine seawater spray in the air), seeding of high cirrus clouds with heterogeneous ice nuclei.
  - **Surface-Based Options** e.g. whitening roofs, growing more reflective crops, etc.

17. Correct Option: (b)

Explanation:

Kalam Climate Fellowship

- India and the US have launched the Fulbright - Kalam Climate Fellowship. The fellowship programme will enable Indian research scholars to work with American institutions in the field of climate change.
  - Under the fellowship will 6 Indian Ph.D. students and post-doctoral researchers will be sponsored to work with US institutions for a period of up to one year.
  - The United States-India Educational Foundation (USIEF) administers the Fulbright-Kalam Climate Fellowship on behalf of both the governments.
  - **Fulbright-Kalam Climate Fellowships are offered for:**
    - **Doctoral Research:** These fellowships are designed for Indian scholars who are registered for a Ph.D. at an Indian institution. These fellowships are for six to nine months.
    - **Postdoctoral Research:** These fellowships are designed for Indian faculty and researchers who are in the early stages of their research careers in India. Fulbright-Kalam Climate Fellowships will provide opportunities to talented faculty and researchers to strengthen their research capacities. Postdoctoral fellows will have access to some of the finest resources in their areas of interest and will help build long-term collaborative relationships with U.S. faculty and institutions. These fellowships are for eight to 12 months.
    - **Affiliation:** The selected candidate will have affiliation with one U.S. host institution during the grant. USIEF strongly recommends all applicants to identify institutions for affiliation and correspond in advance with potential host institutions. If you have a letter of invitation from a U.S. institution, please include it as a part of your online application. The letter of invitation should indicate the duration of your visit, preferably with dates.
    - **Grant Benefits:** These fellowships provide J-1 visa support, round-trip economy class air travel between India and the U.S., a monthly stipend, Accident and Sickness Program for Exchanges per U.S. Government guidelines, a modest settling-in allowance, and a professional allowance.
    - In the case of postdoctoral research grantees, and subject to availability of funds, a dependent allowance and international travel may be provided for one accompanying eligible dependent provided the dependent is with the grantee in the U.S. for at least 80% of the grant period.

18. Correct option: (a)

Explanation:

National Biofuel Policy

- In May 2018, the Union Government of India approved the National Biofuel Policy to encourage **sustainable and alternative fuels.** Further, with the flight of aircraft of Spice Jet from Dehradun to Delhi, developed by **the Indian Institute of Petroleum, Dehradun** using **Jatropha plant seeds in** August 2018, **India joined the elite group of countries** (others being US, Canada and Australia) that operate **biofuel-powered flights.**
- **Jatropha is a second-generation advanced biofuel** manufactured by **chemical and physical treatments of biomass. Other examples of second-generation biofuel are** feedstock like Jatropha, Soyabeans, Rapeseed, animal fats, etc are used.

- **Salient features of the policy:**
  - The Policy categorises biofuels as "Basic Biofuels" viz. First Generation (1G) bioethanol & biodiesel and "Advanced Biofuels" - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG, etc. to enable the extension of appropriate financial and fiscal incentives under each category.
  - The Policy expands the scope of raw material for ethanol production by allowing the use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.
  - Farmers are at risk of not getting the appropriate price for their produce during the surplus production phase. Taking this into account, the Policy allows the use of surplus food grains for the production of ethanol for blending with petrol with the approval of the National Biofuel Coordination Committee.
  - With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
  - The Policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops.
  - Roles and responsibilities of all the concerned Ministries/Departments with respect to biofuels have been captured in the Policy document to synergise efforts.
- The National Policy on Biofuels of India not only help farmers dispose off surplus stock in an economic manner, but also reduce India's oil imports. Rajasthan has become the first state to implement this.

19. Correct Option: (c)

Explanation:

Encroachment on Tribal Land

- **The Supreme Court in February 2019 ordered the eviction of lakhs of people belonging to the Scheduled Tribes (STs) and Other Traditional Forest Dwellers (OTFDs) categories across 16 States, whose claim as forest-dwellers has been rejected under the Forest Rights Act.**
- **SC ordered the Forest Survey of India (FSI) to make a satellite survey and place on record the "encroachment positions."**
- The order is based on affidavits filed by states which do not make it clear whether the due process of law was observed before the claims were rejected.
- The Centre argued that the rejection of claims is particularly high in the States hit by Left-Wing Extremism, where tribal population is high. Being poor and illiterate, living in remote areas, they do not know the appropriate procedure for filing claims and the gram sabhas, which initiate the verification of their claims, are low on awareness of how to deal with them. The rejection orders are not even communicated to these communities.

Forest Rights Act, 2006

- The tribal and forest-dwelling communities, who had been living within the forests in harmony with the environment and the ecosystem, continued to live inside the forests in tenurial insecurity (as the procedure for settlement of rights under Indian Forest Act, 1927 was hardly followed), a situation which continued even after independence as they were marginalized.
- **The symbiotic relationship between forests and forest-dwelling communities found recognition in the National Forest Policy, 1988 which called for the need to associate tribal people in the protection, regeneration, and development of forests.**
- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, was enacted to protect the marginalized socio-economic class of citizens and balance the right to the environment with their right to life and livelihood.
- This Act is crucial to the rights of millions of tribal and other forest dwellers in different parts of our country as it provides for the restitution of deprived forest rights across India, including both individual rights to cultivated land in forestland and community rights over common property resources.

- **The Gram Sabha is the authority to initiate the process for determining the nature and extent of Individual Forest Rights (IFR) or Community Forest Rights (CFR) or both that may be given to FDST and OTFD.**
- FRA recognizes and secure:
  - Community Rights or rights over common property resources of the communities in addition to their individual rights
  - Rights in and over disputed land Rights of settlement and conversion of all forest villages, old habitation, un-surveyed villages and other villages in forests into revenue villages (Relief Rights)
  - Right to protect, regenerate or conserve or manage any community forest resource which the communities have been traditionally protecting and conserving for sustainable use (Forest Management Rights)
  - **Right to intellectual property and traditional knowledge related to biodiversity and cultural diversity**
  - Rights of displaced communities
  - Rights over developmental activities

20. Correct Option: (d)

Explanation:

SAMOA Pathway

- The Third International Conference on Small Island Developing States was held from 1-4 September 2014 in Apia, Samoa.
- The Conference resulted in the adoption of the Small Island Developing States Accelerated Modalities of Action (or SAMOA) Pathway and the announcement of 300 multi-stakeholder partnerships in support of SIDS.
- **SAMOA Pathway articulates the sustainable development pathways and aspirations for SIDS over the next 10 years.**
- **There are 16 priority areas under the SAMOA Pathway. Some of them are:**
  - Sustained and sustainable, inclusive and equitable economic growth with decent work for all
  - Climate Change
  - Sustainable Energy
  - Disaster Risk Reduction
  - **Gender Equality and Women's Empowerment**
  - Biodiversity
  - **Social Development**
- It also established a unique intergovernmental SIDS Partnership Framework, designed to monitor the progress of existing and stimulate the launch of new, genuine and durable partnerships for the sustainable development of SIDS.
- On 27 September 2019, the General Assembly will hold a one-day high-level review of the progress made in addressing the priorities of Small Island Developing States (SIDS) through the implementation of the SAMOA Pathway.
- The General Assembly has decided that the high-level review will result in "a concise action-oriented and inter-governmentally agreed political declaration".

Small Island Developing States (SIDS)

- SIDS is a group of small island countries that are afflicted by economic difficulties and confronted by development imperatives similar to those of developing countries generally but have their own peculiar vulnerabilities and characteristics.
- The United Nations Conference on Sustainable Development (also known as Rio+20) that took place in Rio de Janeiro, Brazil in June 2012 recognize these vulnerabilities and characteristics as - their small size, remoteness, **narrow resource and export base**, and exposure to global environmental challenges and external economic shocks, including a large range of impacts from climate change and potentially more frequent and intense natural disasters.

21. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect: WTO came into existence in Uruguay Rounds of 1986-1994** negotiations being held under the General Agreement on Trade and Tariffs (GATT).
- Statement 3 is incorrect: There are no WTO definitions of "developed" and "developing" countries. Members announce for themselves whether they are "developed" or "developing" countries.

Supplementary notes:

World Trade Organization (WTO)

- It is a successor to the General Agreement

on Tariffs and Trade (GATT) established in the wake of the Second World War.

- Several rounds of negotiations were held under GATT.
- WTO came into existence in Uruguay Rounds of 1986-1994 through Marrakesh Agreement in 1995.
- Members – 164 and together, they constitute 98% of the global trade
- In 2000, 4th WTO Ministerial led to a new round of negotiation, Doha Development Agenda, which is still in progress.
- Mandate – to open trade for the benefit for all
- All decisions are made by consensus.
- WTO Headquarters is in Geneva, Switzerland. It has no other branch office.
- Ministerial Conference is WTO's top level decision making body. It meets once in two years.
- WTO Agreements:
  - For Goods – Marrakesh Agreement (1995) and Trade Facilitation Agreement (2017)
  - For Services – General Agreement on Trade in Services
  - For Intellectual Property - The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)
- Functions
  - Administering WTO Trade Agreement
  - Act as forum for trade negotiation
  - Handling trade disputes
  - Monitoring trade policies
  - Cooperation with other international organization

22. Correct Option: (b)

Explanation:

- Statement 1 is incorrect: Along with Air Force, Navy and Army, even para-military, state police and civilians are also eligible to receive the Gallantary awards for their act of bravery.
- Statement 2 is incorrect: Param Vir Chakra is the highest level of Gallantary award instituted by the Government of India.

Supplementary notes:

Gallantary Awards

- Post-independence, first three gallantry awards namely the Param Vir Chakra, the Maha Vir Chakra and the Vir Chakra were instituted by the Government of India on 26th January, 1950 which were deemed to have effect from the 15th August, 1947.
- The Ashoka Chakra Class-I, the Ashoka Chakra Class-II and the Ashoka Chakra Class-III were instituted by the Government of India on 4th January, 1952, which were deemed to have effect from the 15th August, 1947. These awards were renamed as the Ashoka Chakra, the Kirti Chakra and the Shaurya Chakra respectively in January, 1967.
- These gallantry awards are announced twice in a year - first on the occasion of the Republic Day and then on the occasion of the Independence Day.
- Order of precedence of these awards is:
  - Param Vir Chakra
  - Ashoka Chakra
  - Mahavir Chakra
  - Kirti Chakra
  - Vir Chakra
  - Shaurya Chakra
- SELECTION PROCESS
  - Ministry of Defence invites recommendations twice in a year from the Armed Forces and Union Ministry of Home Affairs for gallantry awards.
  - Recommendations in respect of civilian citizens (other than Defence personnel) are received from the Union Ministry of Home Affairs (MHA).
  - Recommendations received from the Armed Forces and MHA are considered by the Central Honours & Awards Committee (CH&AC) comprising of Raksha Mantri, three Service Chiefs & Defence Secretary. Home Secretary is also member for the cases recommended by the Ministry of Home Affairs.
  - Thereafter, recommendations of the CH&AC are submitted for approval of the Prime Minister and the President. After approval of the President, awards are announced on the occasion of the Republic Day and Independence Day.

23. Correct Option: (a)

Explanation:

- It is a recently discovered lake in Manang district of Nepal

Supplementary notes:

- Kajin Sara Lake
- It is a recently discovered lake in Manang district of Nepal
- It is likely to earn the distinction of the world's highest lake, which is currently held by Tilicho lake (also in Manang)
- It is located at an altitude of 5,200 metres (yet to be confirmed)
- The lake, called Singar locally, have formed out of the water melted from the Himalayas
- In News – Kajin Sara Lake is a recently discovered lake in Manang district of Nepal

24. Correct Option: (b)

Explanation:

- **Tardigrade can survive even in the vacuum of space.**

Supplementary notes:

Tardigrades

- **They often called water bears - are creatures under a millimetre long that can survive being heated to 150C and frozen to almost absolute zero.**
- **They can survive even in the vacuum of space.**
- **They were discovered aboard an Israeli spacecraft that crashed on the moon's surface.**
- **Theoretically be possible for the tardigrades to be collected, brought back to earth, reanimated, and studied to see the effects of being on the moon.**

25. Correct Option: (a)

Explanation:

- **Correct order is Yamunotri, Kedarnath, Gangotri and Badrinath.**

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TEST
DAY - 44

Time Allowed: 30 mins **Maximum Marks: 50**

1. Which of the following statements regarding forest conservation and development is/are correct?

1. While the National Afforestation Programme is implemented on degraded forest lands, Green India Mission aims at improving the quality of the forest.
2. Green India Mission was launched under the National Action Plan on Climate Change (NAPCC) in 2008.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

2. Consider the following statements regarding 'National Afforestation Programme':

1. Funds for the scheme are routed through the State Governments which causes delays.
2. The scheme is implemented by a three-tier institutional set up through the State Forest Development Agency at the state level, Forest Development Agency at the district level and Joint Forest Management Committees at the forest division level.
3. The Scheme is demand-driven and the afforestation area is sanctioned on the basis of past performances.

Which of the above statements is/are correct?

(a) 1 and 2 only

(b) 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

3. Consider the following statements:

1. Both Cartagena and Nagoya Protocols are supplementary agreements to the United Nations Framework Convention on Climate Change.
2. Nagoya Protocol aims to ensure the safe handling, transport, and use of living modified organisms (LMOs) resulting from modern biotechnology.
3. Cartagena Protocol aims for the fair and equitable sharing of benefits arising out of the utilization of genetic resources.

Which of the above statements is/are ***incorrect***?

(a) 1 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2, and 3

4. Which of the following agencies publishes the Emissions Gap Report annually?

(a) UN Environment Programme

(b) International Energy Agency

(c) Intergovernmental Panel on Climate Change

(d) International Union for Conservation of Nature

5. Consider the following pairs regarding the goals of the Aichi Biodiversity Targets:

1. Goal A: Biodiversity benefits to all
2. Goal B: Reduce the direct pressure on biodiversity
3. Goal C: Safeguard ecosystems, species, and genetic diversity

Which of the above pairs are correctly matched?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2, and 3

6. Consider the following statements regarding an organization:

1. It was established in 1948.
2. It was involved in establishing the World Wide Fund for Nature
3. Its headquarter is in Gland.

Which of the following organizations has been described above?

(a) International Union for Conservation of Nature
(b) Intergovernmental Panel on Climate Change
(c) United Nations Environment Programme
(d) Bird Life International

7. Consider the following statements regarding a species:

1. It is one of the five marine turtles that inhabit Indian coastal waters and islands.
2. It does not nest along the Indian coasts.
3. The largest Indian Ocean nesting site of the species is in Oman.

Which of the following species has been described above?

(a) Olive Ridley
(b) Leatherback
(c) Loggerhead
(d) Hawksbill

8. Singalila National Park is located in which of the following states?

(a) Meghalaya
(b) West Bengal
(c) Assam
(d) Manipur

9. Consider the following statements:

1. It is the second-largest mangrove ecosystem in India.
2. It harbors the largest number of saltwater crocodile population in the Indian sub-continent
3. The area has also been designated as the second Ramsar site after Chilka lake.

Which of the following national parks/ wildlife sanctuaries has been described above?

(a) Campbell Bay National Park
(b) Gahirmatha Marine Sanctuary
(c) Marine National Park
(d) Bhitarkanika National Park

10. Coral Reef Recovery Project is the joint venture of which of the following agencies?

1. Wildlife Trust of India
2. Wildlife Institute of India
3. Gujarat Forest Department
4. Maharashtra Forest Department

Select the correct option using the codes given below:

(a) 1 and 2 only
(b) 1 and 3 only
(c) 1, 2, and 3 only
(d) 2 and 4 only

11. Which of the following is the smallest national park in India?

(a) Campbell Bay NP
(b) North Button Island NP
(c) Middle Button Island NP
(d) South Button Island NP

12. Consider the following statements regarding a species:

1. It is the state animal of Jammu and Kashmir.
2. it is also found in Himachal Pradesh.
3. In Kashmir, it is found in the Dachigam National Park.

Which of the following species has been described above?

(a) Musk deer

(b) Kashmir gray langur

(c) Hangul

(d) Snow Leopard

13. With reference to the ecological community, consider the following statements:

1. Major communities depend only on the sun's energy from outside and are independent of the inputs and outputs from adjacent communities.
2. Minor communities are dependent on neighboring communities and are often called societies.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

14. Consider the following statements regarding the types of Food Chains in an Ecosystem:

1. The detritus food chain starts with decomposers, which are heterotrophic organisms.
2. In a terrestrial ecosystem, a much larger fraction of energy flows through the grazing food chain in comparison with the detritus food chain.
3. In an aquatic ecosystem, the detritus food chain is the major conduit for energy flow.

Which of the above statements is/are correct?

(a) 1 and 2 only

(b) 1 only

(c) 2 and 3 only

(d) 1, 2 and 3

15. Consider the following description: "These species have the ability to capture the imagination of the public and include people to support conservation action and/or to donate funds." The above description is regarding which of the following species?

(a) Flagship Species

(b) Critical Link Species

(c) Foundation Species

(d) Umbrella Species

16. With reference to the Coniferous forests, consider the following statements:

1. They are present in the regions of a cold environment with high rainfall.
2. These soils are high in mineral content and organic material.

Which of the above statements is/are ***incorrect***?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

17. What is the difference between Photic and Aphotic zones?

1. Unlike the photic zone, both respiration and photosynthesis take place in the aphotic zone.
2. The photic zone is the lowest layer and the aphotic zone is the upper layer of the aquatic ecosystems.

Select the correct answer using the code given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

18. Identify the *incorrect* statement with respect to Insectivorous Plants:

(a) These are plants that are specialized in trapping insects.

(b) Brilliant colors, sweet secretions are few attractions used by these plants to lure their victims.

(c) Some of them even prey upon large animals as well.

(d) Leaf traps and Pitfall mechanisms are associated with Insectivorous plants.

19. 'A Realm is a continent or sub-continent-sized area with unifying features of geography and fauna & flora'. Which of the following is *not* one of eight recognized biogeographic realms?

(a) Nearctic realm

(b) Palearctic realm

(c) Australian realm

(d) Icelandic realm

20. The Nile Perch introduced in Lake Victoria (East Africa) caused the extinction of more than 200 species of native fish, cichlid fish in the lake is an example of the loss of biodiversity due to:

(a) Alien species invasions

(b) Co-extinction

(c) Habitat loss and fragmentation

(d) Over-exploitation

21. Magadha Burrowing Frog has been confirmed in which one of the following states of India?

(a) Madhya Pradesh

(b) Jharkhand

(c) Odisha

(d) Andhra Pradesh

22. Which one of the following statements about Kolam is correct?

(a) It is a traditional drawing found across south India.

(b) It is a traditional performing artform in the state of Kerala

(c) It is a type of puppetry in Odisha state.

(d) It is a folk dance drama found across south India.

23. Kondapalli toys are cultural icons of which of the following states?

(a) Odisha

(b) Andhra Pradesh

(c) Kerala

(d) Tamil Nadu

24. Consider the following statements regarding Ebola Virus Disease (EVD):

1. People can get EVD through direct contact with an infected animal or a sick or even dead person infected with Ebola virus.
2. A new vaccine has been developed to cure this disease.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

25. Consider the following statements regarding Jal Jeevan Mission:

1. The Har Ghar Nal Se Jal programme, under the Jal Jeevan Mission, is envisioned to provide safe and adequate drinking water to all households in rural India only.
2. The Jal Jeevan Mission will adopt a community based approach.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

****

ANSWER HINTS

DAY - 44

1. Correct Option: (a)

Explanation:

Forest Conservation schemes

- The conservation and development of forest primarily involves three strategies – afforestation through natural/artificial regeneration, protection and management. The ministry is implementing three major schemes for the development of forest areas i.e. National Afforestation Programme (NAP) scheme, National Mission for a Green India (GIM) and Forest Fire Prevention & Management Scheme (FFPM).
- **While NAP is being implemented for afforestation of degraded forest lands, GIM aims at improving the quality of forest and increase in forest cover besides cross-sectoral activities on a landscape basis.**
- The FFPM takes care of forest fire prevention and management measures.
- GIM is one of the eight missions launched under the National Action Plan on Climate Change (NAPCC).
- GIM's launch was supposed to coincide with the starting of the 12th five-year plan in 2012. But, owing to financial delays **the mission was finally launched in 2015.**

2. Correct Option: (c)

Explanation:

National Afforestation Programme

- The overall objective of the National Afforestation Programme (NAP) scheme is the ecological restoration of degraded forests and to develop the forest resources with peoples' participation, with a focus on improvement in livelihoods of the forest-fringe communities, especially the poor. NAP aims to support and accelerate the on-going process of devolving forest conservation, protection, management and development functions to the Joint Forest Management Committees (JFMCs) at the village level, which are registered societies.
- **The scheme is implemented by a three-tier institutional set up through the State Forest Development Agency (SFDA) at the state level, Forest Development Agency (FDA) at the forest division level and Joint Forest Management Committees(JFMCs) at the village level.**
- **The Scheme is demand-driven and the afforestation area is sanctioned on the basis of past performance**, potential degraded forest land available for eco-restoration and availability of budget. The Annual Plan of Operation (APO) of SFDAs is approved as per the Guidelines of NAP.
- NAP is a centrally sponsored scheme which is implemented with the fund sharing pattern of 60: 40 percent between Centre and States wherein the sharing pattern for Northeastern and hilly States is 90:10. The central share of funds is released through State Government and state government transfers the funds to SFDA along with its state share which sometimes causes a delay in fund availability to SFDAs for implementation of NAP causing a delay in submission of mandatory documents for subsequent release of funds.
- Since the inception of the NAP (2000-2002), an amount of Rs.3874.02 crores has been released till 2018-19 to various States and is being utilized for treatment/afforestation over 21 lakh hectare sanctioned area.

3. Correct Option: (d)

Explanation:

Cartagena and Nagoya Protocols to the CBD

- The Cartagena Protocol on Biosafety to the **Convention on Biological Diversity** is

an international agreement which aims to ensure the safe handling, transport, and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity, taking also into account risks to human health. It was adopted on 29 January 2000 and entered into force on 11 September 2003.

- The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the **Convention on Biological Diversity** is a supplementary agreement to the Convention on Biological Diversity. It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: **the fair and equitable sharing of benefits arising out of the utilization of genetic resources.** The Nagoya Protocol on ABS was adopted on 29 October 2010 in Nagoya, Japan and entered into force on 12 October 2014.

4. Correct Option: (a)

Explanation:

Emission Gap Report

- Recently, the tenth edition of the Emissions Gap Report 2019 has been published.
- It is an annual science-based assessment of the gap between countries pledge on greenhouse gas emissions reductions and the reduction required to deliver global temperature increase below 2 degrees Celsius by the end of this century.
- **It is launched by the UN Environment Programme (UNEP).**
- The report also identifies key opportunities for each country to increase the pace of emission reduction necessary to close the gap.
- The Emissions Gap Report measures and projects three key trendlines:
  - The amount of greenhouse gas emissions every year up to 2030.
  - The commitments countries are making to reduce their emissions and the impact these commitments are likely to have an overall emission reduction.
  - The pace at which emissions must be reduced to reach an emission low that would limit the temperature increase to 1.5°C, affordably.

5. Correct Option: (b)

Explanation:

Aichi Biodiversity Targets

- In the COP-10 meeting, the parties agreed that previous biodiversity protection targets are not achieved, So we need to do come up with new plans and targets.
- They came up with Mid/Long term(fulfilled by 2050) and Short term plans(to be fulfilled by 2020).
- The short term plan is officially known as the "Strategic Plan for Biodiversity 2011-2020". It is a ten-year framework for action by all countries to save biodiversity which provides a set of 20 ambitious yet achievable targets (divided into 5 goals), collectively known as the Aichi Targets.

Strategic Goal A: Address the causes of biodiversity loss

- Make people aware of the values of biodiversity
- Integrated biodiversity values in development + poverty reduction plan
- Subsidies which are harmful to biodiversity= and eliminate them, phase them out or reform them
- Sustainable production and consumption.

Strategic Goal B: Reduce the direct pressure on biodiversity and promote sustainable use

- Reduce the rate of natural habitat loss and forest loss by at least 50%
- Reduce overfishing
- Agriculture, aquaculture, and forestry in a sustainable manner
- Reduce pollution and excessive use of fertilizer
- Prevent invasive alien species (non-native)
- Minimize the choral reflow destruction, ocean acidification

Strategic Goal C: Safeguard ecosystems, species, and genetic diversity

- Conserve terrestrial and inland water, coastal – marine areas
- Prevent the extinction of threatened species
- Maintain genetic diversity of agro-plants, domesticated animals and minimizing genetic erosion

Strategic Goal D: Biodiversity benefits to all

- Safeguard ecosystems for women, tribals, and poor.
- Combat desertification and restore the degraded ecosystem
- Operationalize the Nagoya protocol on genetic resources, via national legislations

Strategic Goal E: Participatory planning, capacity building

- National biodiversity strategy and action plans – update for participation
- Integrate the knowledge of tribal communities
- Scientific and technological knowledge sharing application
- Financial resources mobilization.

6. Correct Option: (a)

Explanation:

IUCN

- IUCN is a membership Union composed of both government and civil society organizations.
- It harnesses the experience, resources and reach of its more than 1,300 Member organizations and the input of more than 15,000 experts.
- This diversity and vast expertise make IUCN the global authority on the status of the natural world and the measures needed to safeguard it.
- **IUCN was established in 1948**. It was previously called the International Union for the Protection of Nature (1948–1956) and the World Conservation Union (1990–2008).
- **It was involved in establishing the World Wide Fund for Nature,** CITES, and the World Conservation Monitoring Centre, etc.
- **Its headquarter is in Gland.**

7. Correct Option: (c)

Explanation:

Loggerhead turtle

- India has a coastline of more than 8000 km which is rich in biodiversity. Apart from sustaining fishing grounds, India's coastal waters and beaches provide foraging and nesting sites for a variety of marine species, including sea turtles.
- **Five species of sea turtles are known to inhabit Indian coastal waters and islands.**
- **These are the Olive Ridley (Lepidochelys olivacea), Green (Chelonia mydas), Hawksbill (Eretmochelys imbricata), Loggerhead (Caretta caretta) and the Leatherback (Dermochelys coriacea) turtles.**
- **Except the Loggerhead, the remaining four species nest along the Indian coast.**
- Loggerhead turtles are named for their large heads that support powerful jaw muscles, allowing them to crush hard-shelled prey like clams and sea urchins.
- In the Indian Ocean, loggerheads feed along the coastlines of Africa, the Arabian Peninsula, and in the Arabian Sea. Along the African coastline, loggerheads nest from Mozambique's Bazaruto Archipelago to South Africa's St Lucia estuary. **The largest Indian Ocean nesting site is Oman**, on the Arabian Peninsula, which hosts around 15,000 nests, giving it the second-largest nesting population of loggerheads in the world.

8. Correct Option: (b)

Explanation:

Singalila National Park

- Singalila National Park is located on the Singalila Ridge at an altitude of more than 7000 feet above sea level, in the Darjeeling district of **West Bengal**.
- It was initially a wildlife sanctuary and later made into a national park in 1992. The whole of the Singalila range and the national park has long been part of the trekking route to Sandakphu and Phalut.

9. Correct Option: (d)

Explanation:

Bhitarkanika National Park

- In April 1975, ex-zamindari forests of Kanika Raj were constituted and declared as Bhitarkanika Wildlife Sanctuary by State Government of Odisha. Later in 1998, it was declared as a National Park because of its ecological, faunal, floral, geomorphological and zoological association and importance and for the purpose of protection.
- **In August 2002, it was designated as the second Ramsar site**, after Chilka lake.

- **It is said to house 70% of the country's saltwater crocodiles.**
- **The sanctuary is the second largest mangrove ecosystem in India.**

10. Correct Option: (b)

Explanation:

Coral Reef Recovery Project

- Launched in 2008, the Coral Reef Recovery Project is a joint venture of Wildlife Trust of India and the Gujarat Forest Department, supported by Tata Chemicals Limited (TCL).
- It seeks to develop and implement appropriate strategies for the conservation of the Mithapur Reef, situated 12 kilometers south of the Gulf of Kachchh in Gujarat.
- The project, with initial support, received from the World Land Trust, is also working in the recovery of coral reefs in Gujarat's Marine National Park.

11. Correct Option: (d)

Explanation:

South Button Island NP

- **South Button Island NP with an area of 0.03 km² is the smallest national park in India.**
- It is the part of the Rani Jhansi Marine National Park and is located some 24 km south-west of Havelock Island, South Andaman.
- It was established in the year of 1987.
- The Park is full of shallow-water coral reefs with high visibility. The depth of these Tropical coral reefs is 6 ft (1.8 m) as shallow water. Scuba Diving is a very popular sport here.

12. Correct Option: (c)

Explanation:

Hangul

- The Kashmir stag, also called hangul, is a subspecies of elk native to India.
- It is found in dense riverine forests in the **high valleys and mountains of the Kashmir Valley and northern Chamba district in Himachal Pradesh.**
- **In Kashmir, it's found in the Dachigam National Park where it receives protection but elsewhere it is more at risk.**
- **It is the state animal of Jammu and Kashmir.**
- Earlier believed to be a subspecies of red deer (Cervus elaphus), a number of mitochondrial DNA genetic studies have revealed that the hangul is part of the Asian clade of the elk.
- The International Union for Conservation of Nature (IUCN) has declared it as a Critically Endangered species.

13. Correct Option: (c)

Explanation:

Community

- Individuals of any one species depend on individuals of different species for their survival.
- For example, Animals require plants for food and trees for shelter. Plants require animals for pollination, seed dispersal, and soil microorganism to facilitate nutrient supply.

Types of Communities

On the basis of the size and degree of relative independence, communities may be divided into two types:

- Major community:
  - ➤ These are large-sized, well organized and relatively independent. They depend only on the sun's energy from outside and are independent of the inputs and outputs from adjacent communities.
  - ➤ Examples: Tropical evergreen forest in the north-east.
- Minor communities:
  - ➤ These are dependent on neighboring communities and are often called societies.
  - ➤ They are secondary aggregations within a major community and are not therefore completely independent units as far as energy and nutrient dynamics are concerned.
  - ➤ Examples: A mat of lichen on a cow dung pad.

Structure of a community

- In a community, the number of species and size of their population vary greatly. A community may have one or several species.

- The environmental factors determine the characteristics of the community as well as the pattern of organisation of the members in the community.
- The characteristic pattern of the community is termed as a structure that is reflected in the roles played by various populations, their range and the type of area they inhabit, the diversity of species in the community and the spectrum of interactions between them.

14. Correct Option: (b)

Explanation:

Food Chain

- Transfer of food energy from green plants (producers) through a series of organisms with repeated eating and being eaten link is called a food chain.
- E.g. Grasses → Grasshopper → Frog → Snake → Hawk/Eagle.
- Each step in the food chain is called the trophic level.
- A food chain starts with producers and ends with top carnivores.
- The trophic level of an organism is the position it occupies in a food chain.
- It illustrates the order in which a chain of organisms feeds upon each other.

Types of Food Chains

Grazing Food Chain

- The consumers who start the food chain, utilising the plant or plant part as their food, constitute the grazing food chain.
- For example, in a terrestrial ecosystem, the grass is eaten by a caterpillar, which is eaten by lizard and lizard is eaten by a snake.
- In Aquatic ecosystem phytoplankton (primary producers) are eaten by zooplanktons which are eaten by fishes and fishes are eaten by pelicans (water bird).

Detritus Food Chain

- This type of food chain starts from the organic matter of dead and decaying animals and plant bodies from the grazing food chain.
- Dead organic matter or detritus feeding organisms are called detrivores or decomposers.
- The detrivores are eaten by predators.

Grazing Food Chain (GFC) V/S Detritus Food Chain (DFC)

- **In an aquatic ecosystem, the grazing food chain is the major conduit for energy flow**.
- **On the other hand, in a terrestrial ecosystem, a much larger fraction of energy flows through the detritus food chain (DFC) than through the grazing food chain(GFC).**
- **In a terrestrial ecosystem, a much larger fraction of energy flows through the detritus food chain than through the grazing food chain.**

Basis	Grazing Food Chain	Detritus Food Chain
Definition	The grazing food chain begins in the autotrophs (green plants).	The detritus food chain starts from the detritivores.
Energy Supply	In the grazing food chain, the energy is taken from the sunlight as green plants prepare food in its presence.	In detritus food chain, the main energy source is dead organic matter.
Organisms	In grazing food chain macroscopic organisms are included.	In detritus food chain subsoil organisms are involved, that could be macroscopic or microscopic.
Number of Energy	Releases a lesser quantity of energy into the air.	Releases a greater quantity of energy to the air.

15. Correct Option: (a)

Explanation:

Flagship Species

- **Flagship species are species that have the ability to capture the imagination of the public and induce people to support conservation action and/or to donate funds.**
- These are popular charismatic species that serve as symbols and rallying points to stimulate conservation awareness and action.

- Flagship species can represent an environmental feature, cause, organisation or geographic region.

16. Correct Option: (b)

Explanation:

Coniferous forest (Boreal Forest)

- **Cold regions with high rainfall, strong seasonal climates with long winters and short summers are characterized by boreal coniferous forest.**
- This is characterized by evergreen plant species such as Spruce, fir and pine trees, etc and by animals such as the lynx, wolf, bear, red fox, porcupine, squirrel, and amphibians like Hyla, Rana, etc.
- Boreal forest soils are characterized by thin podzols and are rather poor. Both because the weathering of rocks proceeds slowly in cold environments and because the litter derived from conifer needle (leaf) is decomposed very slowly **and is not rich in nutrients**.
- **These soils are acidic and are mineral deficient**. This is due to the movement of large amounts of water through the soil, without a significant counter-upward movement of evaporation, essential soluble nutrients like calcium, nitrogen, and potassium which are leached sometimes beyond the reach of roots. This process leaves no alkaline oriented cations to encounter the organic acids of the accumulating litter.
- The productivity and community stability of the boreal forest are lower than those of any other forest ecosystem.

17. Correct Option: (d)

Explanation:

Photic zone

- **It is the upper layer of the aquatic ecosystems**, up to which light penetrates and within which photosynthetic activity is confined.
- The depth of this zone depends on the transparency of water.
- **Both photosynthesis and respiration activity takes place.**
- The photic (or "euphotic") zone is the lighted and usually well-mixed portion that extends from the lake surface down to where the light level is 1% of that at the surface.

Aphotic zone

- **The lower layers of the aquatic ecosystems**, where light penetration and plant growth are restricted forms the aphotic zone.
- **Only respiration activity takes place.**
- The aphotic zone is positioned below the littoral and photic zones to the bottom of the lake where light levels are too low for photosynthesis. Respiration occurs at all depths so the aphotic zone is a region of oxygen consumption. This deep, unlit region is also known as the profundal zone.

18. Correct Answer: (c)

Explanation:

Insectivorous Plants

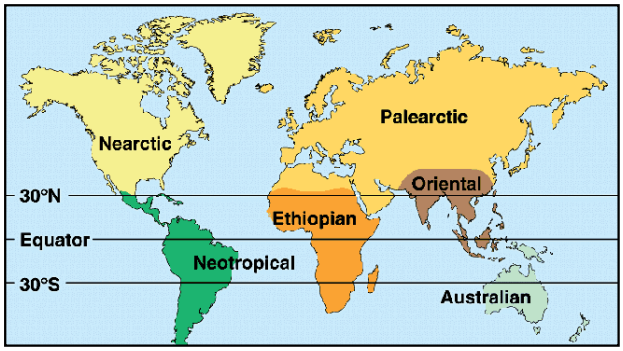
- **These are plants that specialize in trapping insects.**
- They differ from normal plants in their mode of nutrition.
- **However, these plants never prey upon humans or large animals.**
- Insectivorous plants can broadly be divided into two categories based on their method of trapping their prey:
  - Active Plants: These can close their **leaf traps** the moment insects land on them.
  - Passive Plants: These have a **'pitfall' mechanism**, having some kind of jar or pitcher-like structure into which the insect slips and falls, to eventually be digested.
- The insectivorous plants often have **several attractions such as brilliant colors, sweet secretions** and other curios to lure their victims.

19. Correct Option: (d)

Explanation:

Bio Geographic Realm

- Bio geographic realms are large spatial regions within which ecosystems share a broadly similar biota.
- Scholars have recognized eight Terrestrial biogeographic realms:
  - Nearctic realm
  - Neotropical realm
  - Palearctic realm
  - Indo-Malayan/Oriental realm



- ► Afrotropical/Ethiopian realm
- ► Oceania realm
- ► Australian realm
- ► Antarctic realm

20. Correct Option: (a)

Explanation:

Alien Species invasions

- Accidental or intentional introduction of non-native species into a habitat has led to the declination or extinction f indigenous species.
- Alien species cause the decline or extinction of indigenous species. E.g.
  - ► The Nile Perch introduced in Lake Victoria (East Africa) caused the extinction of more than 200
  - ► species of native fish, cichlid fish in the lake.
  - ► Invasive weed species like carrot grass **(Parthenium), Lantana** and water hyacinth
  - ► **(Eicchornia)** caused damage to our native species.
  - ► The illegal introduction of the **African Catfish (Clarias gariepinus)** for aquaculture is
  - ► posing a threat to the indigenous catfishes in our rivers.

21. Correct Option: (b)

Explanation:

- **Option (b) is correct:** A new species of burrowing frog has been confirmed in **Jharkhand's Chhota Nagpur Plateau.**

Supplementary notes:

Magadha Burrowing Frog

- The frog was first discovered in 2015.
- Its existence was verified and confirmed recently and published in the journal Records of the **Zoological Survey of India.**
- The frog is **endemic** to agricultural areas in Nawadih and Joungi village of Jharkhand's Koderma district.
- It has been named as Spahaerotheca Magadha and will be known by the common name of 'Magadha Burrowing Frog'.
- The discovery points to the fact that new species of frogs can still be found even in the 'Central Indian Landscape' other than the Western Ghats and the Northeast, where most discoveries are currently taking place.

22. Correct Option: (a)

Explanation:

- **Option (a) is correct:** Kolam is a traditional drawing found across south India.

Supplementary notes:

- **Kolam** is a **traditional drawing** found **across south India**.
- It is drawn by using rice flour, chalk, chalk powder or rock powder, often using naturally or synthetically colored powders.
- It is a geometrical line drawing composed of curved loops, drawn around a grid pattern of dots.
- Kolams are thought to bring prosperity to homes. Every morning, millions of women draw kolams on the ground with white rice flour.
- Through the day, the drawings get walked on, washed out in the rain, or blown around in the wind; new ones are made the next day

23. Correct Option: (b)

Explanation:

- **Option (b) is correct:** Kondapalli toys - cultural icons of Andhra Pradesh - are one of the most sold handicrafts in India and abroad, across online, wholesale, and retail platforms.

Supplementary notes:

Kondapalli Toys

- Kondapalli Toys are the toys made of wood in Kondapalli of Krishna district, a village nearby Vijayawada in the Indian state of Andhra Pradesh.
- It was registered as one of the geographical indication handicraft from Andhra Pradesh

as per Geographical Indications of Goods (Registration and Protection) Act, 1999.

- These toys were one of the variety of toys assembled in the houses during the festivals of Sankranti and Navratri and is referred as Bommala Koluvu.
- The Kondapalli toys are made from **soft wood known as Tella Poniki** which is found in nearby Kondapalli Hills.
- The wood is first carved out and then the edges are smooth finished.
- The later step involves coloring with either oil or water-colours or vegetable dyes and enamel paints are applied based on the type of the toys.

24. Correct Option: (c)

Explanation:

- **Both the statements are correct**

Supplementary notes:

- Ebola virus disease (EVD), also known as Ebola hemorrhagic fever (EHF), is a viral hemorrhagic fever of humans and other primates caused by ebola viruses.
- It is a rare and deadly disease in people and nonhuman primates.
- **The viruses that cause EVD are located mainly in sub-Saharan Africa. People can get EVD through direct contact with an infected animal (bat or nonhuman primate) or a sick or dead person infected with Ebola virus.**
- Signs and symptoms typically start between two days and three weeks after contracting the virus with a fever, sore throat, muscular pain, and headaches. Vomiting, diarrhea and rash usually follow, along with decreased function of the liver and kidneys.
- **Two experimental drugs showed survival rates of as much as 90% in a clinical trial in Congo.**
- Two experimental drugs – an antibody cocktail called REGN-EB3 developed by Regeneron and a monoclonal antibody called mAb114 – will now be offered to all patients infected with the viral disease in an ongoing outbreak in the Democratic Republic of Congo (DRC).
- The drugs showed "clearly better" results, according to U.S. National Institute of Allergy and Infectious Diseases (NIAID).
- The two promising drugs are made from Ebola antibodies – a protein produced by the immune system to defend against infection. Regeneron's product is a cocktail of three Ebola antibodies, while mAb114 is a single antibody developed by scientists at NIAID.

25. Correct Option: (c)

Explanation:

- **Both the statements are correct**

Supplementary notes:

Jal Jeevan Mission

- Prime Minister flagged the growing water crisis in the country and said around □3.5 trillion will be spent under the ambitious Jal Jeevan Mission aimed at providing potable water.
- **Providing safe drinking water to all parts of the country remains a priority.**
- Under the Jal Jeevan Mission, the government will focus on rainwater harvesting and water conservation in 256 districts in the first phase and carry out other initiatives, including renovation of traditional water bodies and tanks, reuse of water and recharge structures, watershed development and intensive afforestation.
- **The NDA government has formed a new ministry to address all water issues that looks at the management of water resources and drinking water supply in a holistic manner. The Jal Shakti Ministry, formed by integrating the Water Resources and Drinking Water and Sanitation Ministries, aims to work with state governments to ensure Har Ghar Jal to all rural households by 2024.**
- This assumes importance given that water crisis has presented itself as a clear and present danger to India. Policy think-tank Niti Aayog said in a report that nearly 600 million Indians already face "high to extreme water stress.
- Cities, including Delhi, Bengaluru, Chennai and Hyderabad, will run out of groundwater by 2020, affecting 100 million people.
- Matters are only likely to worsen with the country's water demand likely to double by 2030, indicating there will be a 6% loss in gross domestic product by 2050.
- India's most water-stressed blocks are in Tamil Nadu (541), followed by Rajasthan

(218), Uttar Pradesh (139) and Telangana (137), with several states reeling from drought-like conditions.

- **To encourage local participation, National Cadet Corps, National Service Scheme and Nehru Yuva Kendra Sangathan will be involved along with non-government organisations (NGOs) and students from local engineering colleges.**

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TEST
DAY - 45

Time Allowed: 30 mins **Maximum Marks: 50**

1. Which of the following statements is/ are correct?

1. Adaptation is permanent, while acclimation is temporary.
2. Acclimation is a natural process that occurs for every type of organism.

Select the correct option using the codes given below:

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

2. In India, Littoral and swamp forests are found in which regions?

1. Andaman and Nicobar Islands
2. Lakshadweep
3. Delta of Ganga

Select the correct option using the codes given below:

(a) 3 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1 only

3. Which of the following statements is/ are correct?

1. Succession occurs faster in the peripheral area of a large continent.
2. Heterotrophic succession occurs in an area where the green plants are completely absent.

Select the correct option using the codes given below:

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

4. Which of the following statements is/ are *incorrect*?

1. Symbiosis is a close relationship between two species in which one species can be harmed.
2. Both mutualism and parasitism are a symbiotic relationship.

Select the correct option using the codes given below:

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

5. Blue Flag Certification is provided to the beaches by which of the following organizations?

(a) Ocean CleanUp
(b) International Maritime Organization
(c) Foundation for Environmental Education
(d) UN Environment

6. Consider the following statements regarding 'Great Indian Bustard':

1. It is the state bird of Rajasthan because it is found only in Rajasthan.
2. It has been categorized as Critically Endangered by the IUCN.
3. It is the mascot for the 13th Conference of Parties of the Convention on the Conservation of Migratory Species of Wild Animals.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 and 3 only

(c) 1, 2, and 3

(d) 1 and 2 only

7. Which of the following is/are the result(s) of competition in an ecosystem?

1. Extinction
2. Migration
3. Resource Partition

Select the correct option using the codes given below:

(a) 1 only

(b) 2 and 3 only

(c) 1 and 2 only

(d) 1, 2, and 3

8. One Trillion Tree Initiative has been launched by which of the following organizations?

(a) Wildlife Conservation Society

(b) World Economic Forum

(c) BirdlLife International

(d) International Union for Conservation of Nature

9. Consider the following statements:

1. Wetlands International is the only global organization dedicated to the conservation and restoration of wetlands.
2. Its headquarter is in Ramsar, Iran.

Which of the above statements is/are correct?

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

10. Which of the following are the objectives of the Convention on Biological Diversity?

1. To mitigate the climate change
2. To conserve the biodiversity
3. Sustainable use of the components of biodiversity

Select the correct option using the codes given below:

(a) 2 only

(b) 3 only

(c) 2 and 3 only

(d) 1, 2, and 3

11. The largest national park of the Andaman & Nicobar Islands is____

(a) Campbell Bay NP

(b) Mahatama Gandhi Marine NP

(c) Rani Jhansi Marine NP

(d) Mount Harriett NP

12. Which of the following statements regarding the Appendices of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) is/are correct?

1. There are four appendices of the Convention.
2. Appendix I includes birds whereas Appendix II includes the animals.

Select the correct option using the codes given below:

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

13. Ex-situ Conservation means conserving biodiversity outside the areas where they naturally occur. Which of the following is a prominent method of Ex-situ conservation?

(a) National Parks

(b) Wildlife Sanctuaries

(c) Reserved Forests

(d) Botanical Garden

14. Mangroves exhibit a Viviparity mode of reproduction. This implies:

(a) Seeds germinate in the tree itself before falling to the ground

(b) The new plant grows from an outgrowth in the plant body

(c) The new plant grows from the fragments of the parent plant after they fall on the ground

(d) Seeds germinate after falling to the ground.

15. Identify an *incorrect* pair regarding the various medicinal plants and their sources:

(a) **Quinine:** cinchona tree

(b) **Digitalis:** foxglove plant

(c) **Taxol:** Vinca rosea

(d) **Morphine:** Opium plant

16. Consider the following statements about the primary pollutants:

1. These persist in the form in which they are added to the environment.
2. DDT, plastic and peroxyacetyl nitrate (PAN) are examples of primary pollutants.

Which of the above statements is/are correct?

(a) **1 only**

(b) **2 only**

(c) **Both 1 and 2**

(d) **Neither 1 nor 2**

17. Which inorganic pollutants are produced by the Soap and Detergent Industry?

(a) Sulphides and bleaching liquors

(b) Tertiary ammonium compounds alkalies

(c) Various acids and alkalies and silica

(d) Fluorine, nitrates of metals and phosphorus

18. Exposure to which of the following e-waste metal is known to cause damage to our DNA?

(a) Cadmium

(b) Hexavalent Chromium

(c) Beryllium

(d) Barium

19. Exposure to which of the following e-waste metal is known to cause damage to our DNA?

(a) Cadmium

(b) Hexavalent Chromium

(c) Beryllium

(d) Barium

20. Identify the animal listed in Schedule 1 of the WPA, 1972:

(a) King Cobra

(b) Flying Squirrel

(c) Bengal Porcupine

(d) Great Indian Bustard

21. A new species of marmoset has been recently discovered in which part of the world?

(a) Brazil

(b) Argentina

(c) Chile

(d) Peru

22. Sandbox Model recently seen in news is related to which of the following organization?

(a) RBI

(b) DRDO

(c) IMD

(d) SEBI

23. Which of the following provisions are included in the recently approved 'Extension of benefits of Child Care Leave (CCL)'?

1. It is now granted to women employees only.
2. It has put the age limit on the child to be cared to 22 years.
3. It has set the minimum period in each spell to 5 days.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2only

(c) 3 only

(d) 1, 2 and 3

24. Consider the following statements about United Nations Security Council (UNSC):

1. It consists of 15 members with presidency rotating yearly among its members.
2. It meets only once in a year.
3. India currently is not a member of UNSC.

Which of the above statements is/are correct?

(a) 1 only

(b) 1 and 2 only

(c) 3 only

(d) 2 and 3 only

25. Strait of Gibraltar connects which two water bodies?

(a) Mediterranean Sea and Black Sea

(b) Atlantic Ocean and Mediterranean Sea

(c) Black Sea and Caspian Sea

(d) North Sea and Baltic Sea

****

ANSWER HINTS

DAY - 45

1. Correct Option: (a)

Explanation:

Acclimation versus Adaptation

- Adaptation is a change in both the physical and chemical composition of an organism brought about by habitat changes, while acclimation is a physical reaction made in order to adjust to said changes.
- Adaptation takes a long time to achieve and usually affects the whole group to which it belongs. It is part of the **evolution process**, which all living things must undergo in order to cope with the ever-changing planet. One good example of adaptation is the camel and its ability to survive for long periods of time in the desert with very little water.
- Acclimation is a form of adaptation that an organism undergoes when transferred to a different habitat. It doesn't take as long as evolutionary adaptation and it doesn't affect the body composition of the entire species. Adjustment is made by modifying physical reactions to environmental changes, like shivering when exposed to cold weather. It only occurs in the lifespan of the organism and doesn't affect the evolution patterns of its species.
- Adaptation is permanent, while acclimation is temporary.
- Adaptation is a natural process that occurs for every type of organism. This is to ensure the continuity and survival of species.

2. Correct Option: (c)

Explanation:

Littoral and swamp forests

- **Littoral and swamp forests are found along the Andaman and Nicobar Islands and the delta areas of rivers such as Ganga, Brahmaputra, Krishna, etc.**
- The most pronounced and the densest is found in the Sunderban in the Ganga delta where the predominant species is Sundri (Heriteera).
- It consists mainly of whistling pines, mangrove dates, palms, and bullet wood.
- They have roots that consist of soft tissue so that the plant can breathe in the water

3. Correct Option: (d)

Explanation:

Succession

- **Succession would occur faster in areas existing in the middle of the large continent.** This is because here all propagules or seeds of plants belonging to the different seres would reach much faster, establish and ultimately result in the climax community.
- Succession in which, initially the green plants are much greater is quantity is known as autotrophic succession; **and the ones in which the heterotrophs are greater in quantity (but not completely absent) is known as heterotrophic succession.**

4. Correct Option: (d)

Explanation:

Symbiotic interaction

- **Symbiosis is a general term for interspecific interactions in which two species live together in a long-term, intimate association.**
- There are three basic types of symbiosis viz. **mutualism, commensalism, and parasitism**.
- Mutualism is a symbiotic relationship in which both species benefit. Example: Lichens.

- Commensalism is a symbiotic relationship in which one species benefits while the other species is not affected. Example: Shark and Remora. It's worth noting that many apparent commensalism relationships actually turn out to be slightly mutualistic or slightly parasitic when we look at them more closely.
- Parasitism is a symbiotic relationship in which one species (the parasite) benefits while the other species (the host) is harmed. Example: Covid-19.

5. Correct Option: (c)

Explanation:

Blue Flag program

- A Blue Flag beach, marina or boating operator is not only a place to give a sense of pride to the community and to attract tourism, but it also promotes environmental issues and awareness.
- A world-renowned eco-label trusted by millions around the globe, the Blue Flag program is operated under the auspices of the **Foundation for Environmental Education and is headquartered in Copenhagen, Denmark.**
- In order to qualify for this prestigious award, a series of stringent environmental, educational, safety-related and access-related criteria must be met and maintained.
- Central to the ideals of the Blue Flag program is the aim of connecting the public with their surroundings and encouraging them to learn more about their environment.
- The mission of Blue Flag is to promote sustainability in the tourism sector, through environmental education, environmental protection, and other sustainable development practices. Thanks to Blue Flag and its partnerships, more than 4,500 beaches, marinas, and eco-tourism boats are concretely contributing to the sustainable development goals. Blue Flag also campaigns against disparity, inequality, unemployment, health threats, depletion of natural resources, environmental threats, pollution, and general environmental degradation.

6. Correct Option: (b)

Explanation:

Great Indian Bustard

- The theme of CMS COP13 in India is, "Migratory species connect the planet and we welcome them home" and the mascot is "Gibi - The Great Indian Bustard".
- **They are found in Rajasthan, Punjab, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh, the greater part of Central India, Central Provinces and the Deccan, and parts of Thar desert.**
- They inhabit dry and semi-dry grasslands with dispersed bushes and patches of scrub. Breeding tends to occur in undisturbed or less degraded grassland sites.
- It is listed in Schedule I of the Indian Wildlife (Protection)Act, 1972, in the CMS Convention and in Appendix I of CITES, **as Critically Endangered on the IUCN Red List** and the National Wildlife Action Plan (2002-2016). It has also been identified as one of the species for the recovery program under the Integrated Development of Wildlife Habitats of the Ministry of Environment and Forests, Government of India.

7. Correct Option: (d)

Explanation:

Consequences of competition

- When two species depend on the same resource, they are called to be in competition.
- The results of the Competition can be Resource partition (temporary measures), Migration, extinction (if prolonged interaction)

8. Correct Option: (b)

Explanation:

One Trillion Tree Initiative

- The **World Economic Forum** (WEF) at its Davos meeting has launched a global initiative to grow, restore and conserve 1 trillion trees around the world - in a bid to restore biodiversity and help fight climate change.
- 1t.org is a World Economic Forum initiative, designed to support the UN Decade on Ecosystem Restoration 2021-2030, led by UNEP and FAO.
- It offers a platform for leading governments, businesses, civil society and ecopreneurs committed to serving the global trillion trees community.

9. Correct Option: (a)

Explanation:

Wetlands International

- **Wetlands International is the only global not-for-profit organization dedicated to the conservation and restoration of wetlands**. Its vision is a world where wetlands are treasured and nurtured for their beauty, the life they support and the resources they provide.
- **Its headquarter is in Wageningen, Netherlands**.

10. Correct Option: (c)

Explanation:

Convention on Biological Diversity

- The Agreed Text of the Convention on Biological Diversity was adopted on 22 May 1992 in the Nairobi Conference.
- The Convention entered into force on 29 December 1993.
- It has 3 main objectives: **conservation of biological diversity, sustainable use of the components of biological diversity, fair and equitable sharing of the benefits arising out of the utilization of genetic resources.**

11. Correct Option: (a)

Explanation:

National parks of the Andaman & Nicobar Islands

S.No.	Name of State/ Protected Area	Area (km^2)
1	Campbell Bay NP	426.23
2	Galathea Bay NP	110
3	Mahatama Gandhi Marine (Wandoor) NP	281.5
4	Middle Button Island NP	0.44
5	Mount Harriett NP	46.62
6	North Button Island NP	0.44
7	Rani Jhansi Marine NP	256.14
8	Saddle Peak NP	32.54
9	South Button Island NP	0.03

12. Correct Option: (d)

Explanation:

Appendix I & II of CMS

- **CMS has two Appendices**. These appendices list migratory species to which the Convention applies. The text of the Convention defines the basic obligations of the Contracting Parties towards species listed in Appendix I and Appendix II. These obligations are quite distinct for the two Appendices, and a migratory species can be listed in both Appendices at the same time if the circumstances so warrant.
- **Appendix I comprises migratory species that have been assessed as being in danger of extinction throughout all or a significant portion of their range.** The Conference of the Parties has further interpreted the term "endangered" as meaning "facing a very high risk of extinction in the wild in the near future" Parties that are a Range State to a migratory species listed in Appendix I shall endeavor to strictly protect them by prohibiting the taking of such species, with very restricted scope for exceptions; conserving and where appropriate restoring their habitats; preventing, removing or mitigating obstacles to their migration and controlling other factors that might endanger them.
- **Appendix II covers migratory species that have an unfavorable conservation status and that require international agreements for their conservation and management, as well as those that have a conservation status that would significantly benefit from the international cooperation that could be achieved by an international agreement.** The Convention encourages the Range States to species listed in Appendix II to conclude global or regional agreements for the conservation and management of individual species or groups of related species.
- In this respect, CMS acts as a framework convention from which separate instruments evolve. The Agreements may vary from legally binding treaties (the Agreements in the proper sense) to less formal instruments, such as Memoranda of Understanding, Action Plans or Species Initiatives, covering to the extent possible the entire migratory range of the species concerned. The development of instruments tailored according to the conservation needs of species and adapted to the requirements of particular regions is a unique capacity of CMS.

13. Correct Option: (d)

Explanation:

Ex-situ Conservation

- In Ex-situ conservation, animals are reared or plants are cultivated outside the areas where they naturally occur.
- Even reintroduction of an animal or plant into the habitat from where it has become extinct is another form of ex situ conservation.
- Example of this another form of ex situ conservation includes the reintroduction of Gangetic gharial in the rivers of Uttar Pradesh, Madhya Pradesh and Rajasthan where it had become extinct.
- Some prominent methods of Ex-situ conservation include seed banks, **botanical gardens**, horticultural and recreational gardens.

14. Correct Option: (a)

Explanation:

Characteristics of Mangroves

- **Mangroves exhibit Viviparity mode of reproduction i.e. seeds germinate in the tree itself (before falling to the ground).**
- This is an adaptive mechanism to overcome the problem of germination in saline water.

15. Correct Option: (c)

Explanation:

Medicinal plants

- About 40% of all the drugs used throughout the world have active ingredients extracted from plants and animals. Drugs that are derived from natural compounds amount to at least $40 billion worldwide sales annually.
- **For example quinine is used to treat malaria (from the cinchona tree); Digitalis is used to treat chronic heart trouble (from the foxglove plant, Cinchona officinalis); and morphine and cocaine are used to reduce pain; drug for leukemia from Vinca rosea, taxol from Taxus brevifolia etc; and hundreds of life saving antibiotics.**
- In recent years, more than 5000 species of flowering plants have been analysed by scientists for the presence of valuable drugs.

16. Correct Option: (a)

Explanation:

Pollutants

- Pollutants are the materials or factors, which cause an adverse effect on the natural quality of any component of the environment.
- For example, smoke from industries and automobiles, chemicals from factories, radioactive substances from nuclear plants, sewage of houses and discarded household articles are common pollutants.

Classifications

According to the form in which they persist after release into the environment.

- **Primary Pollutants: These persist in the form in which they are added to the environment e.g. DDT, plastic.**
- **Secondary Pollutants**: These are formed by interaction among the primary pollutants. For example, **peroxyacetyl nitrate (PAN) is formed by the interaction of nitrogen oxides and hydrocarbons.**

17. Correct Option: (b)

Explanation:

Sources of Water Pollution

Type of Industry	Inorganic pollutants	Organic pollutants
Mining	Mine Wastes: Chlorides, various metals, ferrous sulphate, sulphuric acid, hydrogen sulphide, ferric hydroxide, surface wash offs, suspended solids, chlorides and heavy metals.	
Iron and Steel	Suspended solids, iron cyanide, thiocyanate, sulphides, oxides of copper, chromium, cadmium, and mercury.	Oil, phenol and neptha

Chemical Plants	Various acids and alkalies, chlorides, sulphates, nitrates of metals, phosphorus, fluorine, silica and suspended particles.	Aromatic compounds solvents, organic acids, nitro compound dyes, etc.
Pharmaceutical	-	Proteins, carbohydrates, organic solvent intermediate products, drugs and antibiotics
Soap and Detergent	Tertiary ammonium compounds alkalies	Flats and fatty acids, glycerol, polyphosphates, sulphonated hydrocarbons.
Food processing	-	Highly putrescible organic matter and pathogens
Paper and Pulp	Sulphides, bleaching liquors.	Cellulose fibres, bark, woods sugars organic acids.

18. Correct Option: (b)

Explanation:

Negative effects of E-Waste exposure

- **Cadmium**: Toxic cadmium compounds accumulate in the human body and harm internal organs especially the kidneys.
- **Barium**: Short-term exposure to barium causes brain swelling, muscle weakness, damage to the heart, liver, and spleen.
- **Beryllium**: Exposure to beryllium can cause lung cancer. Beryllium also causes a skin disease that is characterised by poor wound healing and wartlike bumps
- **Hexavalent Chromium: It can cause damage to DNA and is extremely toxic in the environment.**

19. Correct Option: (b)

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20. Correct Option: (d)

Explanation:

Wildlife Protection Act (WPA), 1972

- Animals listed in schedule 1 and part II of schedule 2 has absolute protection - offenses under these are prescribed the highest penalties.
- Animals listed in schedule 1 include Lion-tailed macaque, Rhinoceros, **Great Indian bustard**, Narcondam hornbill, Nicobar megapode, Blackbuck, etc.
- Animals listed in schedule 2 include Rhesus macaque, Dhole, Bengal Porcupine, King cobra, Flying squirrel, Himalayan brown bear, etc.

21. Correct Option: (a)

Explanation:

- **Option (a) is correct:** A new species of marmoset has been discovered in the south-west of Pará State in Brazil in an area of the Amazon that has suffered extensive illegal logging and agricultural incursion

Supplementary notes:

- A new species of marmoset (Monkey) has been discovered in the south-west of Pará State in Brazil in an area of the Amazon that has suffered extensive illegal logging and agricultural incursion.
- The new species of marmoset was found at Tapajos River.
- The region where the marmoset was discovered is "one of the main fronts of forest destruction within the 'arc of deforestation', a region infamously characterised by

fast, intense and disordered conversion of forests to pastoral and agricultural land and human settlements.

- The new species has been named Mico munduruku after the Munduruku Amerindians who live in the area where the monkey was discovered.
- Mico munduruku occurs only within an area in south-western Pará State, Brazil.
- The marmosets' markings and pigmentation were the first characteristics distinguishing them from others in their genus. Aside from having a white tail, the individuals displayed a beige-yellowish back, white hands, white feet, and white forearms with a beige-yellowish patch on their elbow.
- Their DNA was the second difference. Genomes show they are closely related but separate from other known Amazonian marmosets.

22. Correct Option: (a)

Explanation:

- **Option (a) is correct:** The **Reserve Bank of India (RBI)** issued the final framework for regulatory sandbox in order to enable innovations in the financial technology space.

Supplementary notes:

Regulatory Sand Box

- **The Reserve Bank of India (RBI) issued the final framework for regulatory sandbox in order to enable innovations in the financial technology space.**
- A regulatory sandbox usually refers to live testing of new products or services in a controlled/test regulatory environment for which regulators may permit certain regulatory relaxations for the limited purpose of the testing.
- RBI said the objective of the sandbox was to foster responsible innovation in financial services, promote efficiency and bring benefit to consumers.
- The proposed FinTech solution should highlight an existing gap in the financial ecosystem and the proposal should demonstrate how it would address the problem, and bring benefits to consumers or the industry and/or perform the same work more efficiently.
- RBI will launch the sandbox for entities that meet the criteria of minimum net worth of □25 lakh as per their latest audited balance sheet.
- The entity should either be a company incorporated and registered in the country or banks licensed to operate in India.
- While money transfer services, digital know-your customer, financial inclusion and cyber security products are included, crypto currency, credit registry and credit information have been left out.

23. Correct option: (c)

Explanation:

- **Statement 1 is incorrect:** Besides the women employees, the benefits of CCL are being extended to **single male service personnel also.**
- **Statement 2 is incorrect:** The limit on the child to be cared is kept **unchanged at 18 years**.

Supplementary notes:

- Until now, CCL was being granted to woman officers in defence forces. But from now, DoPT has made certain amendments for grant of CCL to civilian employees, whereby the CCL granted to woman employees till now has been extended to single male government servants also.
- Single male service personnel and women officers of defence forces will also be able to avail CCL in respect of child with 40% disability without any restriction of age limit of the child.
- The age limit of 22 years prescribed earlier in the case of a child with 40% disability has been removed for the purpose of availing CCL. For the normal child the limit is kept unchanged at 18 years.
- The minimum period of CCL that can be availed in each spell has been reduced to five days from the earlier limit of 15 days.

24. Correct Option: (c)

Explanation:

- **Statement 1 is incorrect:** The Security Council consists of fifteen members. The body's presidency rotates **monthly among** its members.
- **Statement 2 is incorrect:** The Security Council **meets year-round**, unlike the General Assembly.

Supplementary notes:

- It is one of the six principal organs of the United Nations (UN).
- Like the UN as a whole, it was created following World War II to address the

failings of a previous international organization, the League of Nations, in maintaining world peace.

- The council held its first session in 1946.
- It is the only body of the UN with the authority to issue binding resolutions to member states.
- The Security Council consists of fifteen members:
  - The great powers that were the victors of World War II – the Soviet Union (now represented by Russia), the United Kingdom, France, Republic of China (now represented by the People's Republic of China), and the United States – serve as the body's five permanent members.
  - These can veto any substantive resolution, including those on the admission of new member states or nominees for the office of Secretary-General.
  - In addition, the council has 10 non-permanent members, elected on a regional basis to serve a term of two years.
  - The body's presidency rotates monthly among its members.
- Resolutions of the Security Council are typically enforced by UN peacekeepers, military forces voluntarily provided by member states and funded independently of the main UN budget.
- Unlike the General Assembly, the Security Council meets year-round. Each Security Council member must have a representative available at UN Headquarters at all times in case an emergency meeting becomes necessary.

25. Correct option: (b)

Explanation:

- **Option (b) is correct**: Strait of Gibraltar connects Atlantic Ocean and Mediterranean Sea.

Supplementary notes:

- Gibraltar is a British Overseas Territory located at the bottom of Spain on the narrow gap between Europe and Africa.
- Known as the Gib or the Rock, it is a small 2.5-mile-squared area with a population of just 30,000 - but it has huge strategic importance.
- This is because from this spot a navy can potentially control shipping in and out of the Mediterranean - much of it coming from Asia having travelled through the Suez Canal.
- The UK, a key member of NATO, has a naval and military base there for this reason.

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