GS SCORE

TARGET PT - 2023

Test No. 02

PTS2023/TPT-01/082022/02

ENVIRONMENT - 2

Answer Key

Q. 1 (b)	Q. 11 (d)	Q. 21 (c)	Q. 31 (d)	Q. 41 (b)
Q. 2 (d)	Q. 12 (a)	Q. 22 (c)	Q. 32 (b)	Q. 42 (a)
Q. 3 (b)	Q. 13 (d)	Q. 23 (b)	Q. 33 (c)	Q. 43 (d)
Q. 4 (d)	Q. 14 (b)	Q. 24 (d)	Q. 34 (c)	Q. 44 (b)
Q. 5 (b)	Q. 15 (a)	Q. 25 (d)	Q. 35 (b)	Q. 45 (a)
Q. 6 (c)	Q. 16 (a)	Q. 26 (d)	Q. 36 (a)	Q. 46 (a)
Q. 7 (b)	Q. 17 (c)	Q. 27 (c)	Q. 37 (a)	Q. 47 (c)
Q. 8 (a)	Q. 18 (d)	Q. 28 (d)	Q. 38 (b)	Q. 48 (c)
Q. 9 (d)	Q. 19 (b)	Q. 29 (a)	Q. 39 (c)	Q. 49 (d)
Q. 10 (d)	Q. 20 (b)	Q. 30 (c)	Q. 40 (c)	Q. 50 (b)

1. Correct Option: (b)

Explanation:

- **Option (b) is correct**

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.
- **Niche similarity is not good, promotes high competition and leads to loss of biodiversity.**

Topic: Biodiversity

Sub-Topic: Patterns and Distribution of Biodiversity

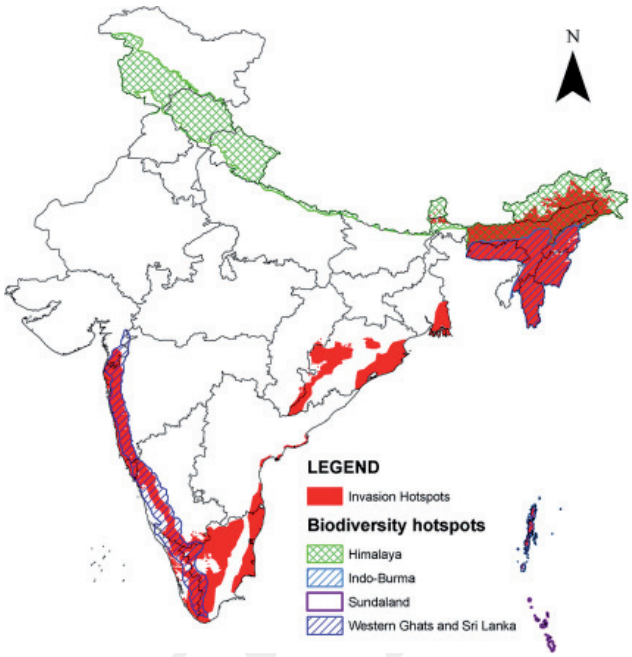
2. Correct Option: (d)

Explanation:

- **Statement 1 is incorrect:** The main reason for Biodiversity loss is **destruction of habitat** as the transformation of the natural areas determines not only the loss of the plant species but also a decrease in the animal species associated with them. Other threat to biodiversity are **invasion of alien species**, **climate change, Deforestation, Increasing Wildlife Trade, Desertification** etc.
- **Statement 2 is incorrect:** Biodiversity hotspots are the region with high species richness and high degree of endemism. Norman Myers in 1988 coined the term Biodiversity Hotspots as a biogeographic region characterized by both plant endemism and Habitat loss.
- **Statement 3 is incorrect:** India has 4 Biodiversity Hotspots i.e. Eastern Himalayas, Indo Burma region, Western Ghats, Sundaland. Nicobar Group of region is considered under Sundaland.

Topic: Biodiversity

Sub-Topic: Biodiversity Hotspots



3. Correct option: (b)

Explanation:

- **Option (b) is correct**

Invasive Species

- 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.
- The global extent and rapid increase in invasive species is homogenising the world's flora and fauna and is recognized as a primary cause of global biodiversity loss.
- Bio-invasion may be considered as a form of biological pollution and significant component on global change and one of the major causes of species extinction.

Characteristic features of Invasive species

- Invasive species possess characteristic features like "pioneer species" in varied landscapes, tolerant of a wide range of soil and weather conditions**, generalist in distribution**, produces copious amounts of seed that disperse easily, grows **aggressive root systems, short generation time, high dispersal rates, long flowering and fruiting periods**, broad native range, abundant in native range.
- **Preliminary data from one interesting study shows that invasive species are**

likely to have relatively small amounts of DNA in their cell nuclei. Apparently, the cells in these plants are able to divide and multiply more quickly and consequently the entire plant can grow more rapidly than species with higher cellular DNA content. This gives them a leg up in disturbed sites.

Topic: Biodiversity

Sub-Topic: Invasive species

4. Correct Option: (d)

Explanation:

- **All statements are correct**

International Union for Conservation of Nature's Green Status of Species

- The first 181 IUCN Green Status of Species preliminary assessments are outlined in a Conservation Biology paper has been published recently.
- **The IUCN Green Status of Species complements the Red List by providing a tool for assessing the recovery of species' populations and measuring their conservation success**. In 2020, Green Status of Species assessments became an optional part of Red List assessments.
- The Green Status of Species was developed in response to Resolution WCC-2012-RES-41. In this Resolution, IUCN called for the development of 'Green Lists' of Species, Ecosystems and Protected Areas, in order to measure conservation success in these three areas.
- Since 2012, a Green List of Protected and Conserved Areas is launched, and the development of the Green Status of Species under the name 'Green List of Species'.

How Does the Green Status of Species Define Recovery?

- The Green Status assesses species against three essential facets of recovery:
  - A species is fully recovered if it is present in all parts of its range, even those that are no longer occupied but were occupied prior to major human impacts/ disruption; AND
  - It is viable (i.e., not threatened with extinction) in all parts of the range; AND
  - It is performing its ecological functions in all parts of the range.
- These factors contribute towards a "Green Score" ranging from 0–100%, which shows how far a species is from its "fully recovered" state.

Topic: Biodiversity

Sub-Topic: IUCN

5. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** Both and community reserves and Conservation Reserves are the outcome of the amendment to the Wildlife Protection Act of 1972 in 2002.

Conservation reserves and community reserves of India

- **Statement 2 is correct:** Conservation reserves and community reserves in India are terms denoting protected areas of India which **typically act as buffer zones to or connectors and migration corridors** between established national parks, wildlife sanctuaries and reserved and protected forests of India.
- Such areas are designated as conservation areas if they are uninhabited and completely owned by the Government of India but used for subsistence by communities and community areas if part of the lands is privately owned.
- These protected area categories were first introduced in the **Wildlife (Protection) Amendment Act of 2002** – the amendment to the Wildlife Protection Act of 1972. These categories were added because of reduced protection in and around existing or proposed protected areas due to private ownership of land, and land use.
- **Statement 3 is correct: Tiruppadaimarathur conservation reserve in Tirunelveli, Tamil Nadu was the first conservation reserve established in 2005.**
- The State Government may notify any community land or private land as a Community Reserve, provided that the members of that community or individuals concerned are agreeable to offer such areas for protecting the fauna and flora, as well as their traditions, cultures and practices.

Topic: Biodiversity

Sub-Topic: Conservation

6. Correct Option: (c)

Explanation:

- **Option (c) is correct**

The Core Zone

- A core zone secures legal protection and management and research activities (such

as **sampling**) that do not affect natural processes and wildlife are allowed.

- Destructive sampling for scientific investigations is prohibited.
- Strict nature reserves and wilderness portions of the area are designated as core areas of BR. The core zone is to be kept free from all human pressures external to the system.

Topic: Biodiversity

Sub-Topic: Conservation Methods and Strategies

7. Correct Option: (b)

Explanation:

- **Option (b) is correct**

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.

Topic: Biodiversity

Sub-Topic: Species

8. Correct Option: (a)

Explanation:

- **Option (a) is correct**

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**).

Topic: Biodiversity

Sub-Topic: Floral Endemism

9. Correct Option: (d)

Explanation:

- **Option (d) is correct**

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. **It is the largest genus of carnivorous plants**.
- Utricularia is useful against cough, for dressing of wounds, as a remedy for urinary disease.

Topic: Biodiversity

Sub-Topic: Plant Species

10. Correct option: (d)

Explanation:

- **All statements are correct**

Snow leopard

- International Snow Leopard Day came into being with the adoption of the Bishkek Declaration.
- It is the National Heritage Animal of Pakistan and Afghanistan.
- Hemis National Park is the Snow Leopard capital of the world.
- India has been conserving snow leopard and its habitat through the Project Snow Leopard (PSL).
- India is also party to the Global Snow Leopard and Ecosystem Protection (GSLEP) Programme since 2013.
- In India, it inhabits the higher Himalayan and trans-Himalayan landscape in the five states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh.

Topic: Biodiversity

Sub-Topic: Endemic Species

11. Correct option: (d)

Explanation:

- **Option (d) is correct**

Olive Ridley Turtles

- India's coastal waters contain 4 species of sea turtles, all listed as endangered under the Indian Wildlife (Protection) Act, 1972 and CITES.
- **These include the green, hawksbill, leatherback and olive ridley, with the ridleys being the smallest in size.**
- The olive ridleys are also the only species exhibiting the phenomena of mass nesting in India and the Indian mass nesting population of olive ridleys is globally the largest rookery.
- **In a nocturnal spectacle spanning a few nights, tens of thousands of Olive Ridley turtles lay over a million eggs ashore in the event known as the arribada.**
- These turtles undertake a long distance migration from the offshore waters of Sri Lanka via Tamil Nadu and Andhra Pradesh to nest in large numbers along the beaches of Odisha.
- However, while direct threats like poaching for trade or consumption have largely been eliminated for the species in India, they continue to face indirect threats from fisheries (bycatch mortality), coastal development (loss of nesting beaches), climate change (altered physiology and habitat) and marine debris (entrapment, ingestions, infiltration in food chain).

Topic: Biodiversity

Sub-Topic: Endemic Species

12. Correct Option: (a)

Explanation:

- **Statement 2 is incorrect:** Wildlife sanctuary can be created for a particular species whereas the national park is not primarily focused on a particular species.
- **Statement 3 is incorrect:** The Wild Life (Protection) Act, 1972 provides for the declaration of National Parks by the State Government in addition to wildlife sanctuaries but Central Government may also declare, under certain conditions.

Wildlife Sanctuaries and National Parks

- National parks and wildlife sanctuaries are protected natural habitats, declared by the government of a country according to the regulations from the IUCN (The World Conservation Union) to preserve the wildlife through the conservation of ecosystems. It is important for people to understand the differences and similarities between a national park and a wildlife sanctuary.
- The Wildlife (Protection) Act, 1972 provides for the establishment of Protected Areas in India. There are different categories of protected areas which are managed with different objectives for the larger motive of conservation.
- The Wild Life (Protection) Act (WPA) of 1972 provided for the declaration of National Parks by the State Government in addition to the declaration of wildlife sanctuaries.
- National Parks are declared in areas that are considered to be of adequate ecological, geomorphological and natural significance although within the law, the difference in conservation value of a National Park from that of a sanctuary is not specified in the WPA 1972.
- The Central Government may also declare, Wild Life Sanctuary and National Park under certain conditions.

Differences

- National Parks enjoy a greater degree of protection than sanctuaries.
- Certain activities which are regulated in sanctuaries, such as grazing of livestock, are prohibited in National Parks.
- Wildlife sanctuary can be created for a particular species whereas the national park is not primarily focused on a particular species.

Topic: Biodiversity

Sub-Topic: Utilitarian aspects for Conserving Biodiversity

13. Correct Option: (d)

Explanation:

- **Option (d) is correct**

UNESCO MAB program

- 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.
- MAB combines the natural and social sciences, economics and education to improve human livelihoods and the equitable sharing of benefits, and to safeguard natural and managed ecosystems,

thus promoting innovative approaches to economic development that are socially and culturally appropriate, and environmentally sustainable.

- **MAB is funded through the regular budget of UNESCO and mobilizes funds-in-trust granted by Member States, bilateral and multilateral sources, and extra-budgetary funds provided by countries, the private sector and private institutions.**
- MAB-related activities are nationally financed. The Programme can grant seed funding to assist countries in developing projects and/or to secure appropriate partnership contributions.
- The World Network of Biosphere Reserves currently counts 701 sites in 124 countries all over the world, including 21 transboundary sites.
- The first biosphere reserve of the world was established in 1979.

Topic: Biodiversity

Sub-Topic: Utilitarian aspects for Conserving Biodiversity

14. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** The scheme is being implemented by Government of India since 1986.

National Biosphere reserve program

- **The Biosphere Reserve Programme is guided by UNESCO Man and Biosphere (MAB) programme as India is a signatory to the landscape approach supported by MAB programme.**
- **A scheme called Biosphere Reserve is being implemented by Government of India since 1986, in which financial assistance is given in 90:10 ratio to the North Eastern Region States and three Himalayan states and in the ratio of 60:40 to other states for maintenance, improvement and development of certain items.**
- **The State Government prepares the Management Action Plan which is approved and monitored by Central MAB Committee.**
- **Presently, there are 18 notified biosphere reserves in India of which 12 are in MAB.**

Topic: Biodiversity

Sub-Topic: Utilitarian aspects for Conserving Biodiversity

15. Correct Option: (a)

Explanation:

- **Option (a) is correct**

Biodiversity Cold spots

- **Cold spots are defined as the areas with high biodiversity and Ecosystem Service values, but low threat values**, i.e., low potential conflict. Such areas might cause less conservation conflicts due to low opportunity costs.
- Overall, the area covered by cold spots is smaller than that covered by hotspots.
- These are the world's last refuges where high numbers of threatened species still persist. They could be the result of protection or because of intact habitat that has not been cleared yet.

Topic: Biodiversity

Sub-Topic: Patterns and Distribution of Biodiversity

16. Correct Option: (a)

Explanation:

- **Statement 1 is incorrect:** As a supplementary agreement to the Convention on Biological Diversity, it was adopted in 2000 and entered into force in 2003.
- **Statement 4 is incorrect:** Although it is a legally binding protocol, the agreement does not alter the rights and obligations of governments under the World Trade Organization (WTO) or other existing international agreements.

Cartagena Protocol

- The Cartagena Protocol on Biosafety is a **legally binding protocol** to the **Convention on Biological Diversity** is an international treaty governing the **movements of living modified organisms** (LMOs) resulting from modern biotechnology from one country to another. It was **adopted on 29 January 2000** as a supplementary agreement to the Convention on Biological Diversity and **entered into force on 11 September 2003**.
- It establishes an **advance informed agreement** (AIA) procedure for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms into their territory.
- The Protocol contains reference to a **precautionary approach** and reaffirms the **precaution language** in **Principle 15 of the Rio Declaration on Environment**

and Development. The Protocol also establishes a Biosafety Clearing-House to facilitate the exchange of information on living modified organisms and to assist countries in the implementation of the Protocol.

- It was named in honour of Cartagena, Colombia, where negotiations were expected to conclude in February 1999. One year later, on January 29, 2000, the Protocol was finalized and adopted in Montreal, Canada by unanimous consent with 135 countries present.
- The Protocol includes a clause that makes clear the Parties' intent that the agreement does not alter the rights and obligations of governments under the World Trade Organization (WTO) or other existing international agreements.

Topic: Biodiversity

Sub-Topic: Utilitarian aspects for Conserving Biodiversity

17. Correct Option: (c)

Explanation:

- **Both statements are correct**

Biodiversity Hotspots

- Norman Myers, a British Ecologist, developed the concept of Hot spots in 1988 to designate priority areas for in situ conservation. According to him, the hot spots are the richest and the most threatened reservoirs of biodiversity on the earth.
- **To qualify as a biodiversity hotspot, a region must meet two strict criteria:**
  - It must have **at least 1,500** vascular plants as endemics — which are to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable.
  - It must have **30%** or less of its original natural vegetation. In other words, it must be threatened.

Topic: Biodiversity

Sub-Topic: Biodiversity Hotspots

18. Correct Option: (d)

Explanation:

- **Option (d) is correct**

Constitutional provisions in India to protect Biodiversity

- Under **Article 48A** of the Indian Constitution, it is stated that the State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.
- **Article 51A** of the Constitution of India specifies fundamental duties of every citizen. It is the duty of every citizen of India: to cherish and follow the noble ideals which inspired the national struggle for freedom; to uphold and protect the sovereignty, unity and integrity of India; to value and preserve the rich heritage of the composite culture; to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures; and to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

Topic: Biodiversity

Sub-Topic: Constitutional Provisions

19. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** It is listed as Vulnerable on the IUCN Red List.
- **Statement 2 is incorrect:** Javan rhinos and Sumatran rhinos are the least populated rhinos.

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, and Pakistan and in Assam, India. It is confined to the tall grasslands and forests in the foothills of the Himalayas.
- 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.**

Topic: Biodiversity

Sub-Topic: Protected Species

20. Correct Option: (b)

Explanation:

- **Statement 2 is incorrect:** It is found in Manipur, Assam, Andhra Pradesh

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**.

Topic: Biodiversity

Sub-Topic: Species

21. Correct Option: (c)

Explanation:

- **Option (c) is correct**

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.
- **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.

Topic: Biodiversity

Sub-Topic: Invasive Species

22. Correct Option: (c)

Explanation:

- **Both statements are correct**

Biopiracy

- It is often assumed that traditional knowledge is in public domain and the local communities have no claims over it. Hence, such knowledge can be easily misappropriated.
- Biopiracy here refers to the appropriation of traditional knowledge of biodiversity by outsiders and companies and it includes fraudulent patenting of such biological resources for profit.
- Some examples of biopiracy in India
  - Turmeric: In 1995, two NRIs in the US were awarded a patent for the wound-healing property of turmeric. India's Council of Scientific and Industrial Research contested the patent on the argument that the medicinal properties of turmeric were known to Indians since centuries. The patent was cancelled.
  - Basmati Rice: In 1997, the US firm Rice Tec obtained patents for Basmati Rice line and grains, arguing that they invented the variety. Due to massive protests, some of their claims were rejected.
  - Neem: In 1994, the European Patent Office awards a patent to the US firm, W.R. Grace for a method of controlling fungi on plants by the aid of Neem oil. NGOs and Indian farmers successfully contested this patent.
  - It is not always easy to fight against biopiracy. In this era of globalization, it is important to record all such traditional and local knowledge of biodiversity.

Topic: Biodiversity

Sub-Topic: Conservation, Biopiracy

23. Correct Option: (b)

Explanation:

- **Option (b) is correct**

Agasthyamalai Biosphere Reserve

- The Agasthyamalai Biosphere Reserve is located in the southernmost end of the Western Ghats.
- Western Ghats and incorporates peaks towering 1,868 m above sea level. Consisting mostly of tropical forest, the site is home to 2,254 species of higher plants including about 400 that are endemic. It is also a

unique genetic reservoir of cultivated plants, in particular cardamom, jamune, nutmeg, pepper and plantain. Three wildlife sanctuaries, Shendurney, Peppara and Neyyar, are located in the site, as well as the Kalakad Mundanthurai Tiger reserve.

- The reserve is home to Kani tribes from both Tamil Nadu and Kerala, which number in total approximately 30,000 inhabitants. The community uses a wide variety of biological resources for sustenance but is rarely involved in their commercialization

Topic: Biodiversity

Sub-Topic: Biosphere Reserve

24. Correct Option: (d)

Explanation:

- **Option (d) is correct**

Protected areas in India

- There are 553 existing wildlife sanctuaries in India covering an area of 119776.00 km2, which is 3.64 % of the geographical area of the country. **Daying Ering Memorial Wildlife Sanctuary is in Arunachal Pradesh**.
- There are 104 existing national parks in India covering an area of 43,716 km2, which is 1.33% of the geographical area of the country. **Kazinag National Park is in Jammu and Kashmir, Neora Valley National Park in West Bengal, Mouling National Park is in Arunachal Pradesh.**

Topic: Biodiversity

Sub-Topic: National Parks

25. Correct Option: (d)

Explanation:

- **Both statements are correct**

Global Eco-regions

- Developed by WWF scientists, in collaboration with regional experts around the world, the Global Ecoregions is a science-based global ranking of the Earth's most biologically outstanding terrestrial, freshwater, and marine habitats.
- It provides a critical blueprint for biodiversity conservation at a global scale. It is the first comparative analysis of biodiversity to cover every major habitat type, spanning five continents and all the world's oceans.
- The aim of the Global Eco regions analysis is to ensure that the full range of ecosystems is represented within regional conservation and development strategies, so that conservation efforts around the world contribute to a global biodiversity strategy.

Topic: Biodiversity of India and World

Sub-Topic: Global Eco-regions

26. Correct option: (d)

Explantation:

- **Statement 1 is incorrect:** Insects are the most diverse group and number of flowering plant species is second to the insects.
- **Statement 3 is incorrect:** Introduction of exotic (foreign) and highly adaptable species to any region poses existential threat to native species.

Biodiversity

- Although we do not have exact number of species in every group, the available information suggests that insects are the most diverse group and number of flowering plant species is second to the insects.

Natural threats to diversity

- Loss of predators may help in increasing the population size of the prey species but it always affects biodiversity of the region adversely.
- Introduction of exotic (foreign) and highly adaptable species to any region poses existential threat to native species and such exotic species is called invasive species.

Anthropogenic threats to the biodiversity

- Human activities (anthropological activity) have greatly contributed to the species extinction. While the debate is still going on about the quantitative impact of human activity over biodiversity, it is expected that rate of extinction has increased somewhere between 100 to 1000 times from its basal level in last two centuries.
- Primary anthropogenic activities that impacts biodiversity can be listed below (the list is suggestive not exhaustive)
  - Agriculture,
  - Deforestation,
  - Climate change due to industrialisation,
  - Global movement of humans.
  - Extraction of natural resources etc.
- **Note: Agricultural activity encourages protected cultivation of few species at the cost of much wild life (plant and animal) which is one of the biggest causes of loss of biodiversity.**

Topic: Biodiversity

Sub-Topic: Threats to diversity

27. Correct option: (c)

Explanation:

- **Option (c) is correct**

Genetic diversity

- Genetic diversity refers to any variation in the nucleotide, gene, chromosome or whole genome of the organism.
- According to Williams and Humphries, it is the currency of diversity.
- Approximately 1 billion of genes have been recognised from all the species on the earth.
- Genetic diversity is the key for the survival of any species with changing environmental factors.
- Two major sources of genetic diversity are mutation and sexual reproduction (meiotic cell division).
- Genetic diversity in a species ensures the success of only that particular species which may impact other species in the region either positively or negatively.
- For example, in ongoing global pandemic due to mutation there are several variants of SARS-CoV-2 are formed which is good for the survival and propagation or the virus but it is detrimental for the hosts (in this case human). Further mutation may turn it in to deadlier or help in diversify the host species.

Topic: Biodiversity

Sub-Topic: Types of Diversity

28. Correct option: (d)

Explanation:

- **Option (d) is correct**

Shannon's diversity index

- The measure was originally proposed by Claude Shannon in 1948 to quantify the entropy.
- It was originally proposed about the 'string' of letters from the pool of different letters. If the number and types of letters are more, it will be harder to predict the next letter that will appear in the string.
- In the terms of diversity, more number of species and equitable representation of each species will make a diverse ecosystem. It will be harder to predict next organism belongs to which species when we start making list of them as we find them in the ecosystem.
- It can also consider as quantification 'surprise element' of finding the individual of certain species.
- Shannon's diversity index/ Shannon entropy can be calculated as:

$$H = -\sum_{i=1}^{n} p_i ln p_i$$

- Where, p_i is the proportion of the i^{th} species and n is the total number of species in the ecosystem.
- Species richness (S) only accounts for the number of species in the ecosystem i.e number of species. In this example ecosystem A is the richest in species number.
- Evenness index (E) only accounts for the equitable representation of each species in the ecosystem, it is calculated by $E = H/ln(S)$. In the above example ecosystem B has highest E value.

Topic: Biodiversity

Sub-Topic: Patterns and Distribution of Biodiversity

29. Correct Option: (a)

Explanation:

- **Statement 2 is incorrect:** Genetic diversity (not species diversity) allows species to adapt to changing environments.

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.

Topic: Biodiversity

Sub-Topic: The importance of Species and Genetic Diversity to the Ecosystem

30. Correct Option: (c)

Explanation:

- **Both statements are correct**

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.

Topic: Biodiversity

Sub-Topic: Speciation

31. Correct Option: (d)

Explanation:

- **Statement 1 is incorrect:** Alpha diversity refers to diversity within a particular area, community or ecosystem.
- **Statement 2 is incorrect:** Beta diversity is species diversity between ecosystems.

Patterns of Biodiversity

- These indices take into account the taxonomic relation between different organisms in a community. Taxonomic diversity, for example, reflects the average taxonomic distance between any two organisms, chosen at random from a sample. The distance can be seen as the length of the path connecting these two organisms along the branches of a phylogenetic tree.
- These three types of indices can be used on different spatial scales:
  - **Alpha diversity refers to diversity within a particular area, community or ecosystem**, and is usually measured by counting the number of taxa within the ecosystem (usually species level);
  - **Beta diversity is species diversity between ecosystems**; this involves comparing the number of taxa that are unique to each of the ecosystems. For example, the diversity of mangroves versus the diversity of seagrass beds;
- **Gamma diversity is a measure of the overall diversity for different ecosystems within a region**.

Topic: Biodiversity

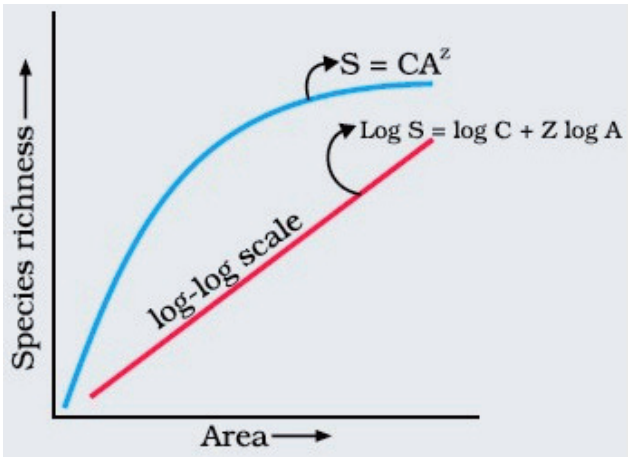
Sub-Topic: Patterns and Distribution of Biodiversity

32. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** In general, species diversity decreases as we move away from the equator towards the poles. With very few exceptions, tropics (latitudinal range of 23.5° N to 23.5° S) harbour more species than temperate or polar areas. Tropics are also known as optimum Biome.
- **Statement 2 is correct:** Both describes the Pattern of Biodiversity.

Pattern of Biodiversity



- **Latitudinal gradients:** it is the most well- known being the latitudinal gradient in diversity. The diversity of Plants and Animals are uneven throughout the world.
- **Species-Area relationships**: German naturalist and geographer Alexander von Humboldt observed that within a region species richness increased with increasing explored area, but only up to a limit. The relation between species richness and area

for a wide variety of taxa turns out to be a rectangular hyperbola. But, if you analyse the species-area relationships among very large areas (continents), the slope of the line would be much steeper

Topic: Biodiversity

Sub-Topic: Biodiversity Pattern

33. Correct Option: (c)

Explanation:

- **Statement 1 is incorrect: Paracoccus marginatus (Papaya Mealy Bug):** It is native to Mexico and Central America. It is believed to have destroyed huge crops of papaya in Assam, West Bengal and Tamil Nadu.
- **Statement 2 is incorrect:** Prospolis Julifora is native to Mexico, South America and Caribbean and alien species to Asia, Africa .It was introduced in the late 19th century in India to keep the salt flats of Rann of Kutch in check and for fuel availability. It has encroached **more than 30%** area of Banni Grassland. Banni Grassland was declared a protected forest in 1955 under Indian Forest Act 1927. Banni Grassland is Asia largest Grassland situated in **Rann of Kutch**, Gujrat and home to **Maldharis.**
- **Statement 3 is Correct:** The most common characteristics of invasive species are rapid reproduction and growth, high dispersal ability, ability to survive on various food types and in a wide range of environmental conditions and ability to adapt physiologically to new conditions called **phenotypic plasticity**.

Topic: Biodiversity

Sub-Topic: Invasive species in India

34. Correct Option: (c)

Explanation:

- **Statement 1 is incorrect:** The Global 200 is the list of ecoregions which is identified by **World Wildlife Fund (WWF)** as priorities for conservation. These ecoregions include those with exceptional levels of biodiversity, such as high species richness or endemism, or those with unusual ecological or evolutionary phenomena.
- **Statement 2 is correct:** The temperate evergreen forests are located in the mid latitudinal coastal region. They are commonly found along the eastern margin of the continents e.g. in south east USA, South China and in South East Brazil. They comprise both hard and soft wood trees like oak, pine, eucalyptus, etc.
- **Statement 3 is correct:** Equatorial Forest are found in such Tropical Zones which receives more than **200 cm** rainfall. They are also called evergreen forest. The **thick canopies** of the closely spaced trees **do not allow the sunlight** to penetrate inside the forest even in the day time. All plants struggle upwards (epiphytes) for sunlight resulting in a peculiar layer arrangement.

Topic: Vegetation

Sub-Topic: Global Ecoregion

35. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect: Kovai Manjack** is a shrub endemic to **Coimbatore**. The species is known as **Sirunaruvili in Tamil** & is classified as **Critically Endangered.** The shrub with creamy white flowers and orange berries was first discovered in **1938 by K Cherian Jacob**. The **leaves** of the plants have **Antioxidant** activity and phytochemical constituent. Threat to this shrub is Human Interference particularly rapid Urbanization and anthropogenic activities.
- **Statement 2 is correct:** India harbors more endemic species of plants than any other region of world except Australia. About 33% of Flowering plants are endemic to India. The reason for great endemism is its Geographic Location and different climatic conditions (Himalayas in North, sea on three sides of peninsular region).

Topic: Endemism

Sub-Topic: Floral Endemism

36. Correct Option: (a)

Explanation:

- **Statement 1 is correct:** The white-bellied heron also known as the imperial heron or great white-bellied heron, is a large heron species living in the foothills of the eastern Himalayas in northeast India and Bhutan to northern Myanmar.
- It inhabits undisturbed rivers and wetlands.
- **Statement 2 is correct:** It has been listed as Critically Endangered on the IUCN Red List since 2007, because the global population is estimated at less than 300 mature individuals and threatened by habitat loss and human disturbance.
- **Statement 3 is incorrect:** It is locally extinct in Nepal and in Bangladesh.

Topic: Species

Sub-Topic: Critically Endangered Species of India and the World

37. Correct Option: (a)

Explanation

- **Statement 1 is incorrect:** It is endemic to Arunachal Pradesh in northeast India.
- **Statement 2 is correct:** The squirrels are nocturnal and is critically endangered on the IUCN red list.
- It is known from a single specimen collected in 1981 in Namdapha National Park.
- Its range of the Namdapha flying squirrel may be restricted to a single valley and it is threatened by poaching of animals for food from within the park, and possibly by habitat destruction.
- It is among the 25 "most wanted lost" species that are the focus of Global Wildlife Conservation's "Search for Lost Species" initiative.
- Like other flying squirrels, the most distinctive feature of this species is the furred, muscular membrane that extends along the sides of the body, from the front limbs to the hind legs.
- The Namdapha flying squirrel inhabits temperate broadleaf forests.

Topic: Species

Sub-Topic: Critically Endangered Species of India and the World

38. Correct Option: (b)

Explanation:

- **Statement 1 is incorrect:** The Chinese pangolin is found in the Himalayan foothills in Eastern Nepal, Bhutan, Northern India, and North-East Bangladesh and through Southern China.
- **Statement 2 is incorrect:** In India, it has been given the highest level of protection as it is included in Schedule I of the Wildlife Protection Act 1972.

Chinese Pangolin

- The pangolin, also called scaly anteater, is an elongated, armor-plated insectivore of the order Pholidota.
- The Chinese pangolin has the appearance of a scaly anteater.
- It is adaptable to a wide range of habitats including primary and secondary tropical forests, limestone and bamboo forests, grasslands and agricultural fields.
- Once known to be found in large numbers, its population is rapidly declining in its range due to habitat loss and rampant poaching for its skin, scales, and meat.

Topic: Species

Sub-Topic: Critically Endangered

39. Correct Option: (c)

Explanation

- **Both statements are correct**

IUCN red list

- The International Union for Conservation of Nature (IUCN) Red List of Threatened Species, also known as the IUCN Red List or Red Data Book, founded in 1964, is the world's most comprehensive inventory of the global conservation status of biological species.
- IUCN red list divides species into nine categories: Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, and Extinct in the Wild and Extinct.
- A taxon is 'Data Deficient' when there is inadequate information to make a direct, or indirect assessment of its risk of extinction based on its distribution and/or population status.
- Approx. 50% of the species assessed by IUCN are under 'Least Concern' category.

Topic: Species

Sub-Topic: IUCN red list

40. Correct Option: (c)

Explanation:

- **Statement 1 is correct:** It assesses the recovery of species' populations and measures their conservation success.
- **Statement 2 is correct:** The IUCN Green List of Protected and Conserved Areas Standard (IUCN Green List Standard) describes a set of seventeen CRITERIA categorized under four COMPONENTS, accompanied by 50 indicators.

IUCN Green status of Species

- The overarching objective of the IUCN Green List Programme is to increase the number of protected and conserved areas that deliver successful conservation outcomes through effective and equitable governance and management.

- IUCN began to shape the concept for a Green List of Protected Areas in 2008.
- At the 2012 World Conservation Congress, four IUCN Resolutions supported the development of an IUCN Green List for Protected and Conserved areas.

Topic: Species

Sub-Topic: IUCN Green status of Species

41. Correct Option: (b)

Explanation:

- **Statement 1 is correct:** **Predators** help in maintaining species diversity in a community, by reducing the intensity of competition among competing prey species. **For example**, in the rocky intertidal communities of the American Pacific Coast the starfish Pisaster is an important predator. In a field experiment, when all the starfish were removed from an enclosed intertidal area, more than 10 species of invertebrates became extinct within a year, because of interspecific competition.
- **Statement 2 is correct**: Predation is nature's way of transferring to higher trophic levels the energy fixed by plants. They keep prey populations under control.
- **Statement 3 is incorrect**: Nicotine and opium are chemical compounds produced by plants as a **defence against grazing herbivores**. Because of these chemicals, animals avoid eating these plants. A wide variety of chemical substances that are extracted from plants on a commercial scale (**nicotine, caffeine, quinine, strychnine, opium**, etc.,) are produced by them actually as defences against grazers and browsers.

Topic: Biodiversity

Sub-Topic: Patterns and Distribution of Biodiversity

42. Correct Option: (a)

Explanation:

- **Pair 1 is incorrectly matched:** Mangrove Forests and Rain forests are **example of ecosystem diversity**. Ecosystem diversity refers to the diversity at the ecosystem level. India, for instance, with its deserts, rain forests, mangroves, coral reefs, wetlands, estuaries, and alpine meadows has a greater ecosystem diversity than a Scandinavian country like Norway.
- **Pair 2 is correctly matched:** Species diversity refers to the diversity at the species level. The fact that the Western Ghats have a greater amphibian species diversity than the Eastern Ghats is an example of species diversity.
- **Pair 3 is incorrectly matched:** **Genetic diversity** – A single species might show high diversity at the genetic level over its distributional range. Different varieties of Mangoes found in India is an example of Genetic diversity. India has more than 50,000 genetically different strains of rice, and 1,000 varieties of mango.

Topic: Biodiversity

Sub-Topic: The importance of Species and Genetic Diversity to the Ecosystem

43. Correct Option: (d)

Explanation:

- **Option (d) is correct**

Enhancing the Biodiversity

- Protected areas should be designated and **effectively managed** to protect the ecosystem and the organisms living there. Today, protected areas across the globe cover around 15 percent of our land, about 10 percent of the coastal and marine areas within national jurisdiction, and 3.4 percent of our oceans.
- Invasive alien species are **non-native plants or animals** that are introduced accidentally or deliberately into an ecosystem where they are not normally found, with serious **negative consequences** for that ecosystem. An example illustrating the detrimental impact of invasive alien species is the case of the yellow-legged hornet, native to South East Asia and introduced through horticultural trade in 2005**.**
- Agriculture had a tremendous impact on biodiversity. **Intensive and monoculture farming depletes soil nutrients but it also strips the cultivated land from a range of organisms that help fight the spread of pests.** Sustainable agriculture practices support integrating biodiversity in various ways including in terms of diversity of crops, traditional agriculture techniques to control pests and increase productivity as well as ensuring that farmed land is made up of a diverse mix of grazing land, crop land, orchards, wetlands and managed forests.
- **Rewilding, or re-wilding, activities are conservation efforts** aimed at restoring and protecting natural processes and wilderness areas. For instance, in 2013 eight European bison were released into the wild in the Bad Berleburg region of Germany, an area where they had been extinct for the last 300 years.

- **Green infrastructure is an approach that seeks to marry modern development and infrastructure projects with biodiversity conservation.** If when we make plans for building roads, railways and bridges we assess the impacts for local biodiversity and adapt our plans to minimize those, this will go a long way to helping increase biodiversity. **For example,** in urban areas properly designed parks, urban gardens, green roofs and walls can contribute to biodiversity.

Topic: Biodiversity

Sub-Topic: Factors that enhance biodiversity

44. Correct Option: (b)

Explanation:

Characteristics of Endemism

- They are species whose location is restricted to certain areas of the planet, which have the **specific conditions** to ensure their survival.
- It has **lower genetic exchange** for livestock natural barriers existing in a specific geographical area prevent genetic exchange and drive the emergence of endemism and its species.
- By relying on very **specific natural conditions** and having a smaller number of specimens, they are **more vulnerable** to extinction.
- Because of their isolation these species end up acquiring unique traits derived from, for example, the diet or climate of the geographical area.

Cosmopolitan distribution

- A particular type of animal or plant may be endemic to a zone, a state or a country. The extreme opposite of endemism is **cosmopolitan distribution**._A particular type of animal or plant may be endemic to a zone, a state or a country. The extreme opposite of endemism is **cosmopolitan distribution**.

Topic: Biodiversity

Sub-Topic: Endemism

45. Correct Option: (a)

Explanation:

- **Option (a) is correct**

Ecological succession

- **Ecological succession** is the process that describes how the structure a biological community (that is, an interacting group of various species in a desert, forest, grassland, marine environment, and so on) changes over time.
- **Primary succession on rocks:** These are usually lichens which are able to secrete acids to dissolve rock, helping in weathering and soil formation. These later pave the way for some very small plants like bryophytes, which are able to take hold in the small amount of soil.
- Succession that begins in new habitats or lifeless areas that are uninfluenced by pre-existing communities are called Primary succession.
- **Small Phytoplankton** are the pioneers that conducts primary succession in water.
- Phytoplanktons are gradually replaced with time by rooted-submerge plants, rooted-floating angiosperms followed by free-floating plants, then reed-swamp, marsh meadow, scrub and finally the trees.
- **Secondary Succession** is that follows the disruption of a pre-existing community that existed in the same ecosystem.
- The climax again would be a forest. With time the water body is converted into land.

Topic: Extinction of species

Sub-Topic: Mass extinction

46. Correct Option: (a)

Explanation:

- **Statement 3 is incorrect:** The species richness index (S) does not take the abundance of the different species into the account.

Measures (indices) of Biodiversity Diversity

- **The Species Richness (S)**
  - Richness R simply quantifies how many different types the dataset of interest contains. For example, species richness (usually noted S) of a dataset is the number of species in the corresponding species list. Richness is a simple measure, so it has been a popular diversity index in ecology, where abundance data are often not available for the datasets of interest. Because richness does not take the abundance of the types into account, it is not the same thing as diversity, which does take abundance into account.
- **The Shannon index**
  - The Shannon index has been a popular diversity index in the ecological literature,

where it is also known as Shannon's diversity index, Shannon–Wiener index, and (erroneously) Shannon–Weaver index. The measure was originally proposed by Claude Shannon in 1948 to quantify the entropy (hence Shannon entropy, related to Shannon information content) in strings of text. The idea is that the more letters there are, and the closer their proportional abundances in the string of interest, the more difficult it is to correctly predict which letter will be the next one in the string. The Shannon entropy quantifies the uncertainty (entropy or degree of surprise) associated with this prediction.

- The more unequal the abundances of the species, the larger the weighted geometric mean of the p_i values, and the smaller the corresponding Shannon entropy. If practically all abundance is concentrated to one species, and the other species are very rare (even if there are many of them), Shannon entropy approaches zero. When there are only one species in the region, Shannon entropy exactly equals zero (there is no uncertainty in predicting the type of the next randomly chosen entity).

Topic: Biodiversity

Sub-Topic: Biodiversity Indices

47. Correct Option: (c)

Explanation:

- **Statement R is incorrect:** Grasses being a very successful family of the plant kingdom, give fierce competition to any other family but most of the grasses are not perennial so they cannot inhibit the succession merely by competition. Grasses attract two most important factors that are largely responsible for the halt of succession in many grasslands; frequent grazing and frequent fire.

Succession in Grasslands

- Forests are the natural, original "climax" vegetation in nearly all of Southeast Asia, but Imperata grasslands are now widespread. When forests are disturbed by logging, shifting agriculture, or burning, Imperata often takes over. Imperata's seeds are blown far and wide, and they can grow on wet or dry, fertile or infertile soils. Once established, the grass is a very flammable fuel. Even three days without rain can dry out the grass enough to carry a fire, burning both the grass and nearby forest vegetation. Fire stimulates both flowering and immediate regrowth of Imperata's, rhizomes. At the same time, fire damages or kills forest vegetation. If fires are frequent, Imperata will gradually become more dominant. It often forms monocultures except for a few scattered fire-resistant trees and shrubs, or it is part of mixed grasslands with other fire-adapted grasses. This is called a "fire climax."
- Imperata grasslands also persist because many other species have difficulty competing with Imperata for water, nutrients, and light. Some species are also affected by the toxic ("allelopathic") substances produced in and leaking from Imperata's roots and rhizomes.
- If an Imperata grassland does not burn, it will naturally and gradually return to the forest ("forest succession"). Slowly, pioneer trees and shrubs sprout or grow from, seed, and eventually, some grow above Imperata and outcompete it for light and water. Once Imperata is suppressed, additional species can grow more easily.
- It is often assumed that grasslands are the final, irreversible result of deforestation and the abandonment of farmlands and that therefore grasslands are increasing in the area. While it is true that grasslands are expanding in many places, Imperata is only a "climax" if the fire or other disturbances continue. Many grasslands have been converted into agriculture or agroforestry during this century. In some countries and provinces, the total area of Imperata grasslands has decreased as human populations and the demand for land has increased.

Topic: Biodiversity

Sub-Topic: Succession

48. Correct Option: (c)

Explanation:

- **Both statements are correct**

Asiatic Cheetah

- The Asiatic cheetah that was wiped out from India in 1960s is now **only found in Iran**, and is categorized as **critically endangered**.
- Since, it is not possible to source the animal from Iran, India is set to bring another sub-specie of cheetah — the African Cheetah, which can provide it with substantial numbers of suitable cheetah for several years.

Topic: biodiversity

Sub-Topic: Conservation

49. Correct Option: (d)

Explanation:

- **<u>All pairs are correctly matched</u>**

Forest Ecosystem

- The forest ecosystem includes a complex assemblage of different kinds of biotic communities.
- The nature of soil, climate and local topography determine the distribution of trees and their abundance in the forest vegetation.
- Cold regions with high rainfall, strong seasonal climates with long winters and short summers are characterized by boreal coniferous forest.

Boreal 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.

Temperate forests

- **The temperate forests are characterized by a moderate climate and broad-leafed deciduous trees,** which shed their leaves in fall, are bare over winter and grow new foliage in the spring.
- The precipitation is fairly uniform throughout. Soils of temperate forests are podzolic and fairly deep.

Tropical rain forests

- Tropical rain forests occur near the equator. Tropical rain forests are among the most diverse and rich communities on the earth.
- Both temperature and humidity remain high and more or less uniform.
- The annual rainfall exceeds 200 cm and is generally distributed throughout the year.
- Soil of tropical rainforests is red latosols, and they are very thick.
- The high rate of leaching makes these soils virtually useless for agricultural purposes, but when left undisturbed, the rapid cycling of nutrients within the litter layer, formed due to decomposition can compensate for the natural poverty of the soil.
- **Undergrowth is restricted in many areas by the lack of sunlight at ground level.**

Topic: biodiversity

Sub-Topic: terrestrial ecosystem

50. Correct Option: (b)

Explanation:

- **<u>Option (b) is correct</u>**

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.

Topic: biodiversity

Sub-Topic: ecosystem diversity

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