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PRELIMS PRACTICE WORKBOOK

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PREVIOUS YEAR QUESTION

WITH ANSWER & EXPLANATIONS

PREVIOUS 13 YEARS

GEOGRAPHY

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PRELIMS PRACTICE WORKBOOK

GEOGRAPHY

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GEOGRAPHY
PREVIOUS YEAR QUESTIONS

GEOMORPHOLOGY

1. Consider the following statements:

1. In a seismograph, P waves are recorded earlier than S waves.
2. In P waves, the individual particles vibrate to and fro in the direction of wave propagation whereas in S waves, the particles vibrate up and down at right angles to the direction of wave propagation.

Which of the statements given above is/are correct?

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

2. On 21st June, the Sun

(a) Does not set below the horizon at the Arctic Circle
(b) Does not set below the horizon at Antarctic Circle
(c) Shines vertically overhead at noon on the Equator
(d) Shines vertically overhead at the Tropic of Capricorn

3. The term "Sixth mass extinction/ sixth extinction is often mentioned in the news in the context of the discussion of

(a) Widespread monoculture practices in agriculture and large-scale commercial farming with indiscriminate use of chemicals in many parts of the world that may result in the loss of good native ecosystems.
(b) Fears of a possible collision of a meteorite with the Earth in the near future in the manner it happened 65 million years ago that caused the mass extinction of many species including those of dinosaurs.
(c) Large scale cultivation of genetically modified crops in many parts of the world and promoting their cultivation in other parts of the world which may cause the disappearance of good native crop plants and the loss of food biodiversity.
(d) Mankind's over-exploitation/misuse of natural resources, fragmentation/loss of natural habitats, destruction of ecosystems, pollution and global climate change.

4. Which of the following phenomena might have influenced the evolution of organisms?

1. Continental drift
2. Glacial cycles

Select the correct option using the code given below:

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

5. Variations in the length of daytime and night time from season to season are due to:

(a) The earth's rotation on its axis
(b) The earth's revolution around the sun in an elliptical manner
(c) Latitudinal position of the place
(d) Revolution of the earth on a tilted axis

6. On the planet earth, most of the freshwater exists as ice caps and glaciers. Out of the remaining freshwater, the largest proportion:

(a) is found in the atmosphere as moisture and clouds
(b) is found in freshwater lakes and rivers
(c) exists as groundwater
(d) exists as soil moisture

7. Consider the following:

1. Electromagnetic radiation
2. Geothermal energy
3. Gravitational force
4. Plate movements

5. Rotation of the earth
6. Revolution of the earth

Which of the above are responsible for bringing dynamic changes on the surface of the earth?

(a) 1, 2, 3 and 4 only (c) 2, 4, 5 and 6 only
(b) 1, 3, 5 and 6 only (d) 1, 2, 3, 4, 5 and 6

8. Which one of the following sets of elements was primarily responsible for the origin of life on the Earth?

(a) Hydrogen, Oxygen, Sodium
(b) Carbon, Hydrogen, Nitrogen
(c) Oxygen, Calcium, Phosphorous
(d) Carbon, Hydrogen, Potassium

9. A person stood alone in a desert on a dark night and wanted to reach his village which was situated 5km east of the point where he was standing. He had no instruments to find the direction but he located the polestar, the most convenient way now to reach his village is to walk in the

(a) facing the polestar
(b) opposite to the polestar
(c) keeping the polestar to his left
(d) keeping the polestar to his right

10. From the point of view of evolution of living organisms, which one of the following is the correct sequence of evolution?

(a) Otter – Tortoise – Shark
(b) Shark – Tortoise – Otter
(c) Tortoise – Shark – Otter
(d) Shark – Otter – Trotoise

11. Consider the following minerals :

1. Bentonite
2. Chromite
3. Kyanite
4. Sillimanite

In India, which of the above are officially designated as major minerals ?

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

OCEANOGRAPHY

1. Consider the following statements:

Statements-I:

The temperature contrast between continents and oceans is greater during summer than in winter.

Statements-II:

The specific heat of water is more than that of land surface.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

2. What explains the eastward flow of the equatorial counter-current?

(a) The Earth's rotation on its axis
(b) The convergence of the two equatorial currents
(c) The difference in salinity of water
(d) The occurrence of the belt of calm near the equator

3. Tides occur in the oceans and seas due to which among the following?

1. The gravitational force of the Sun
2. The gravitational force of the Moon
3. The centrifugal force of the Earth

Select the correct option using the code given below:

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

4. The most important fishing grounds of the world are found in the regions where

(a) warm and cold atmospheric currents meet
(b) rivers drain out large amounts of freshwater into the sea
(c) warm and cold oceanic currents meet
(d) continental shelf is undulating

5. The acidification of oceans is increasing. why is this phenomenon a cause of concern?

1. The growth and survival of calcareous phytoplankton will be adversely affected
2. The growth and survival of coral reefs will be adversely affected
3. The survival of some animals that have phytoplankton larvae will be adversely affected

4. The cloud seeding and formation of clouds will be adversely affected

Which of the statements is/are correct?

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

6. Consider the following factors:

1. Rotation of the Earth
2. Air pressure and wind
3. Density of ocean water
4. Revolution of the Earth

Which of the above factors influence the ocean currents?

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

7. Consider the following statements:

1. On the planet Earth, the freshwater available for use amounts to about less than 1% of the total water found.
2. Of the total freshwater found on the planet Earth 95 % is bound up in polar ice caps and glaciers.

Which of the statements given above is/are correct?

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

8. With reference to the water on the planet Earth, consider the following statements:

1. The amount of water in the rivers and lakes is more than the amount of groundwater.
2. The amount of water in polar ice caps and glaciers is more than the amount of groundwater.

Which of the statements given above is/are correct?

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

9. Consider the following statements:

1. The Global Ocean Commission grants licences for seabed exploration and mining in international waters.
2. India has received licences for seabed mineral exploration in international waters.
3. 'Rare earth minerals' are present on seafloor in international waters.

Which of the statements given above are correct?

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

CLIMATOLOGY

1. Consider the following pairs:

Object in space	*Description*
1. Cepheids	Giant clouds of dust and gas in space
2. Nebulae	Stars which brighten and dim periodically
3. Pulsars	Neutron stars that, are formed when massive stars run out of fuel and collaspe

How many of the above pairs are correctly matched?

(a) Only one
(b) Only two
(c) All three
(d) None

2. With reference to the Earth's atmosphere, which one of the following statements is correct?

(a) The total amount of insolation received at the equator is roughly about 10 times of that received at the poles.
(b) Infrared rays constitute roughly two-thirds of insolation.
(c) Infrared waves are largely absorbed by water vapour that is concentrated in the lower atmosphere.
(d) Infrared waves are a part of visible spectrum of electromagnetic waves of solar radiation.

3. Why are dewdrops not formed on a cloudy night?

(a) Clouds absorb the radiation released from the Earth's surface.
(b) Clouds reflect back the Earth's radiation.
(c) The Earth's surface would have low temperature on cloudy nights.
(d) Clouds deflect the blowing wind to ground level.

4. With reference to 'Indian Ocean Dipole (IOD)', sometimes mentioned in the news while forecasting Indian monsoon, which of the following statements is/are correct?

1. IOD phenomenon is characterized by a difference in sea surface temperature between tropical Western Indian Ocean and tropical Eastern Pacific Ocean.
2. An IOD phenomenon can influence an El Nino's impact on the monsoon.

Select the correct Option using the code given below:

(a) Only 1 (c) Both 1 and 2

(b) Only 2 (d) Neither 1 nor 2

5. In the South Atlantic and South-Eastern Pacific regions in tropical latitudes, cyclone does not originate. What is the reason?

(a) Sea surface temperatures are low

(b) Inter-Tropical Convergence Zone seldom occurs

(c) Coriolis force is too weak

(d) Absence of land in those regions

6. Consider the following statements:

1. The winds which blow between 30°N and 60°S latitudes throughout the year are known as westerlies.
2. The moist air masses that cause winter rains in the North-Western region of India are part of westerlies.

Which of the statements given above is/are correct?

(a) Only 1 (c) Both 1 and 2

(b) Only 2 (d) Neither 1 nor 2

7. "Each day is more or less the same, the morning is clear and bright with a sea breeze; as the Sun climbs high in the sky, heat mounts up, dark clouds form, then rain comes with thunder and lightning. But rain is soon over."

Which of the following regions is described in the above passage?

(a) Savannah (c) Monsoon

(b) Equatorial (d) Mediterranean

8. The seasonal reversal of winds is the typical characteristic of

(a) Equatorial climate

(b) Mediterranean climate

(c) Monsoon climate

(d) All of the above climates

9. Which of the following is/are unique characteristics/characteristics of equatorial forests?

1. Presence of tall, closely set trees with crowns forming a continuous canopy.
2. Coexistence of a large number of species
3. Presence of numerous varieties of epiphytes

Select the correct option using the code given below:

(a) 1 only (c) 1 and 3 only

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

10. Normally the temp decreases with the increase in height from the earth's surface, because

1. The atmosphere can be heated upwards only from the Earth's surface.
2. There is more moisture in the upper atmosphere.
3. The air is less dense in the upper atmosphere.

Select the correct option using the codes given below:

(a) 1 only (c) 1 and 3 only

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

11. Which one of the following is the characteristic climate of the Tropical Savannah Region?

(a) Rainfall throughout the year

(b) Rainfall in winter only

(c) An extremely short dry season

(d) A definite dry and wet season

12. La Nina is suspected to have caused recent floods in Australia. How is La Nina different from El Nino?

1. La Nina is characterized by unusually cold ocean temperature in equatorial Indian Ocean whereas El Nino is characterized by unusually warm ocean temperature in the equatorial Pacific Ocean.
2. El Nino has an adverse effect on south-west monsoon of India, but La Nina has no effect on monsoon climate.

Which of the statements given above is/are correct?

(a) Only 1 (c) Both 1 and 2

(b) Only 2 (d) Neither 1 nor 2

13. Westerlies in the southern hemisphere are stronger and persistent than in northern hemisphere. Why?

1. The southern hemisphere has less landmass as compared to the northern hemisphere.
2. Coriolis force is higher in the southern hemisphere as compared to the northern hemisphere.

Which of the statements given above is/are correct?

(a) Only 1 (c) Both 1 and 2

(b) Only 2 (d) Neither 1 nor 2

14. If a tropical rain forest is removed, it does not regenerate quickly as compared to a tropical deciduous forest. This is because?

(a) The soil of rain forest is deficient in nutrients.

(b) Propagules of the trees in a rain forest have poor viability.

(c) The rain forest species are slow-growing.

(d) Exotic species invade the fertile soil of rain forest.

15. What could be the main reason/reasons for the formation of African and Eurasian desert belt?

1. It is located in the subtropical high-pressure cells.
2. It is under the influence of warm ocean currents.

Which of the statements given above is/are correct in this context?

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

16. A geographic area with an altitude of 400 meters has following characteristics:

Month	Average Maximum	Temp. °C Average Minimum	Temp. °C Rainfall (mm)
J	31	21	51
F	31	21	85
M	31	21	188
A	31	21	158
M	30	21	139
J	30	21	121
J	29	20	134
A	28	20	168
S	29	20	185
O	29	20	221
N	30	20	198
D	21	20	86

If this geographic area were to have a natural forest, which one of the following would it most likely be?

(a) Moist temperate coniferous forest
(b) Montane subtropical forest
(c) Temperate forest
(d) Tropical rain forest

17. A new type of El Nino called El Nino Modoki appeared in the news. In this context, consider the following statements:

1. Normal El Nino forms in the Central Pacific ocean whereas El-Nino Modoki forms in the Eastern Pacific ocean.
2. Normal EI Nino results in diminished hurricanes in the Atlantic ocean but El Nino Modoki results in a greater number of hurricanes with greater frequency.

Which of the statements given above is/are correct?

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

18. Which one of the following reflects back more sunlight as compared to other three?

(a) Sand desert
(b) Paddy crop land
(c) Land covered with fresh snow
(d) Prairie land

19. A geographic region has the following distinct characteristics:

1. The warm and dry climate
2. Mild and wet winter
3. Evergreen oak trees

The above features are the distinct characteristics of which one of the following regions?

(a) Mediterranean
(b) Eastern China
(c) Central Asia
(d) Atlantic coast of North America

20. Consider the following which can be found in the ambient atmosphere:

1. Soot
2. Sulphur hexafluoride
3. Water vapour

Which of the above contribute to the warming up of the atmosphere?

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

21. A layer in the earth's atmosphere called ionosphere facilitates radio communication. Why?

1. The presence of ozone causes the reflection of radio waves to earth.
2. Radio waves have a very long wavelength.

Which of the statements given above is/are correct?

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

22. The jet aircraft fly very easily and smoothly in the lower stratosphere. What could be the appropriate explanation?

1. There are no clouds or water vapor in the lower stratosphere.
2. There are no vertical winds in the lower stratosphere.

Which of the statements given above is/are correct in this context?

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

23. What causes the wind to deflect toward the left in the Southern hemisphere?

(a) Temperature (c) Rotation of the earth
(b) Magnetic field (d) Pressure

24. During a thunderstorm, the thunder in the skies is produced by the

1. meeting of cumulonimbus clouds in the sky
2. lightning that separates the nimbus clouds
3. violent upward movement of air and water particles

Select the correct option using the codes given below:

(a) 1 only (c) 1 and 3 only
(b) 2 and 3 only (d) None of the above

25. Consider the following statements:

1. Jet streams occur in the Northern Hemisphere only.
2. Only some cyclones develop an eye.
3. The temperature inside the eye of a cyclone is nearly 100C lesser than that of the surroundings.

Which of the statements given above is/are correct?

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

26. Consider the following statements:

1. In the tropical zone, the western sections of the oceans are warmer than the eastern sections owing to the influence of trade winds.
2. In the temperate zone, westerlies make the eastern sections of oceans warmer than the western sections.

Which of the statements given above is/are correct?

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

27. In the northern hemisphere, the longest day of the year normally occurs in the:

(a) First half of the month of June
(b) Second half of the month of June
(c) First half of the month of July
(d) Second half of the month of July

28. Consider the following statements:

1. High clouds primarily reflect solar radiation and cool the surface of the Earth.
2. Low clouds have a high absorption of infrared radiation emanating from the Earth's surface and thus cause warming effect.

Which of the statements given above is/are correct?

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

BIOGEOGRAPHY

1. Consider the following statements:

Statement-I:

Marsupials are not naturally found in India.

Statement-II:

Marsupials can thrive only in montane grasslands with no predators.

Which one of the following is correct in respect of the above statements?

(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
(b) Both Statement-I and Statement-II are correct and Statement-H is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

2. Consider the following statements:

1. India has more arable area than China.
2. The proportion of irrigated area is more in India as compared to China.
3. The average productivity per - hectare in Indian agriculture is higher than that in China.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

3. Which one of the following countries has been suffering from decades of civil strife and food shortages and was in news in the recent past for its very severe famine?

(a) Angola
(b) Costa Rice
(c) Ecuador
(d) Somalia

4. Contour bunding is a method of soil conservation used in

(a) desert margins, liable to strong wind action
(b) low flat plains, close to stream courses, liable to flooding
(c) scrublands, liable to spread of weed growth
(d) None of the above

5. "Climate is extreme, rainfall is scanty and the people used to be nomadic herders." The above statement best describes which of the following regions?

(a) African Savannah
(b) Central Asian Steppe
(c) North American Prairie
(d) Siberian Tundra

6. With reference to micro-irrigation, which of the following statements is/are correct?

1. Fertilizer/nutrient loss can be reduced.
2. It is the only means of irrigation in dryland farming.
3. In some areas of farming, the receding of the groundwater table can be checked.

Select the correct option using the codes given below:

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

7. Salinization occurs when the irrigation water accumulated in the soil evaporates, leaving behind salts and minerals. What are the effects of salinization on the irrigated land?

(a) It greatly increases the crop production
(b) It makes some soils impermeable
(c) It raises the water table
(d) It fills the air spaces in the soil with water

8. Though coffee and tea both are cultivated on hill slopes, there is some difference between them regarding their cultivation. In this context, consider the following statements:

1. The coffee plant requires a hot and humid climate of tropical areas whereas tea can be cultivated in both tropical and subtropical areas.
2. Coffee is propagated by seeds but tea is propagated by stem cuttings only.

Which of the statements given above is/are correct?

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

9. Recently there has been a concern over the short supply of a group of elements called rare earth metals. Why?

1. China, which is the largest producer of these elements, has imposed some restrictions on their export.
2. Other than china, Australia, Canada, Chile, these elements are not found in any country.
3. Rare earth metals are essential for the manufacture of various kinds of electronic items and there is growing demand for these elements.

Select the correct option using the codes given below:

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

10. The vegetation of savannah consists of grassland with scattered small trees, but extensive areas have no trees. The forest development in such areas is generally kept in check by one or more or a combination of some conditions. Which of the following are such conditions?

1. Burrowing animals and termites
2. Fire
3. Grazing herbivores
4. Seasonal rainfall
5. Soil properties

Select the correct answer using the code given below.

(a) 1 and 2 only (c) 2, 3 and 4 only
(b) 4 and 5 only (d) 1, 3 and 5 only

11. Consider the following statements:

1. Moringa (drumstick tree) is a leguminous evergreen tree.
2. Tamarind tree is endemic to South Asia.
3. In India, most of the tamarind is collected as minor forest produce.
4. India exports tamarind and seeds of moringa.
5. Seeds of moringa and tamarind can be used in the production of biofuels.

Which of the statements given above are correct?

(a) 1, 2, 4 and 5 only (c) 1, 3 and 4 only
(b) 3, 4 and 5 only (d) 1, 2, 3 and 5 only

12. How is permaculture farming different from conventional chemical farming?

1. Permaculture farming discourages monocultural practices but in conventional chemical farming, monoculture practices are pre-dominant.
2. Conventional chemical farming can cause increase in soil salinity but the occurrence of such phenomenon is not observed in permaculture farming.
3. Conventional chemical farming is easily possible in semi-arid regions but permaculture farming is not so easily possible in such regions.
4. Practice of mulching is very important in permaculture farming but not necessarily so in conventional chemical farming.

Select the correct answer using the code given below.

(a) 1 and 3 only (c) 4 only

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

13. With reference to 'palm oil', consider the following statements:

1. The palm oil tree is native to Southeast Asia.
2. The palm oil is a raw material for some industries producing lipstick and perfumes.
3. The palm oil can be used to produce biodiesel.

Which of the statements given above are correct?

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

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

14. Among the following, which one is the least water-efficient crop?

(a) Sugarcane (c) Pearl millet

(b) Sunflower (d) Red gram

15. "Leaf litter decomposes faster than in any other biome and as a result the soil surface is often almost bare. Apart from trees, the vegetation is largely composed of plant forms that reach up into the canopy vicariously, by climbing the trees or growing as epiphytes, rooted on the upper branches of trees". This is the most likely description of

(a) coniferous forest

(b) dry deciduous forest

(c) mangrove forest

(d) tropical rain forest

INDIAN GEOGRAPHY

1. Consider the following statements:

1. Amarkantak Hills are at the confluence of Vindhya and Sahyadri Ranges.
2. Biligirirangan Hills constitute the easternmost part of Satpura Range.
3. Seshachalam Hills constitute the southernmost part of Western Ghats.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) All three

(d) None

2. Consider the following statements:

1. Jhelum River passes through Wular Lake.
2. Krishna River directly feeds Kolleru Lake.
3. Meandering of Gandak River formed Kanwar Lake.

How many of the statements given above are correct?

(a) Only one

(b) Only two

(c) All three

(d) None

3. Consider the following statements:

Statement-I:

Switzerland is one of the leading exporters of gold in terms of value.

Statement-II:

Switzerland has the second largest gold reserves in the world.

Which one of the following is correct in respect of the above statements?

(a) Both statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I

(c) Statement-I is correct but Statement-II is incorrect.

(d) Statement-I- is incorrect but Statement-II is correct.

4. What is common to the places known as Aliyar, Isapur and Kangsabati?

(a) Recently discovered uranium deposits

(b) Tropical rain forests

(c) Underground cave systems

(d) Water reservoirs

5. Consider the following pairs :

	Glacier		*River*
1.	Bandarpunch	:	Yamuna
2.	Bara Shigri	:	Chenab
3.	Milam	:	Mandakini
4.	Siachen	:	Nubra
5.	Zemu	:	Manas

Which of the pairs given above are correctly matched?

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

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

6. Consider the following pairs:

	Famous place		*River*
1.	Pandharpur	:	Chandrabhaga
2.	Tiruchirappalli	:	Cauvery
3.	Hampi	:	Malaprabha

Which of the pairs given above are correctly matched?

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

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

7. With reference to the cultivation of Kharif crop in India in the last five years, consider the following statements:

1. Area under rice cultivation is the highest.
2. Area under the cultivation of jowar is more than that of oilseeds.
3. Area of cotton cultivation is more than that of sugarcane.
4. Area under sugarcane cultivation has steadily decreased.

Which of the statements given above are correct?

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

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

8. With reference to the management of minor minerals in India consider the following statements:

1. Sand is a 'minor mineral' according to the prevailing law in country.
2. State Governments have the power to grant mining leases of minor minerals, but the powers regarding the formation of rules related to the grant of minor minerals lie with the Central Government.
3. State Governments have the power to frame rules to prevent illegal mining of minor minerals.

Which of the statements given above is/are correct?

(a) 1 and 3 only (c) 3 only

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

9. Consider the following statements:

1. The Barren Island volcano is an active volcano located in the Indian Territory.
2. Barren Island lies about 140 km east of Great Nicobar.
3. The last time the Barren Island volcano erupted was in 1991 and it has remained inactive since then.

Which of the statements given above is/are correct?

(a) 1 only (c) 3 only

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

10. Which one of the following is an artificial lake?

(a) Kodaikanal (TamilNadu)

(b) Kolleru (Andhra Pradesh)

(c) Nainital (Uttarakhand)

(d) Renuka (Himachal Pradesh)

11. Consider the following statements:

1. In India, State Governments do not have the power to auction non-coal mines.
2. Andhra Pradesh and Jharkhand do not have goldmines.
3. Rajasthan has iron ore mines.

Which of the statements given above is/are correct?

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

(b) 2 only (d) 3 only

12. With reference to river Teesta, consider the following statements:

1. The source of river Teesta is the same as that of Brahmaputra but it flows through Sikkim.
2. River Rangeet originates in Sikkim and it is a tributary of river Teesta.
3. River Teesta flows into the Bay of Bengal on the border of India and Bangladesh.

Which of the statements given above is/are correct?

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

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

13. Consider the following statements:

1. In India, the Himalayas are spread over five States only.
2. Western Ghats are spread over five States only.
3. Pulicat Lake is spread over two States only.

Which of the statements given above is/are correct?

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

(b) 3 only (d) 1 and 3 only

14. If you want to see gharials in their natural habitat, which one of the following is the best place to visit?

(a) Bhitarkanika Mangroves (c) Pulicat Lake

(b) Chambal River (d) DeeporBeel

15. If you travel by road from Kohima to Kottayam, what is the minimum number of States within India through which you can travel, including the origin and the destination?

(a) 6 (c) 8
(b) 7 (d) 9

16. Which of the following is geographically closest to Great Nicobar?

(a) Sumatra (c) Java
(b) Borneo (d) Sri Lanka

17. From the ecological point of view, which one of the following assumes importance in being a good link between the Eastern Ghats and the Western Ghats?

(a) Sathyamangalam Tiger Reserve
(b) Nallamala Forest
(c) Nagarhole National Park
(d) Seshachalam Biosphere Reserve

18. At one of the places in India, if you stand on the seashore and watch the sea, you will find that the seawater recedes from the shoreline a few kilometers and comes back to the shore, twice a day, and you can actually walk on the seafloor when the water recedes. This unique phenomenon is seen at

(a) Bhavnagar (c) Chandipur
(b) Bheemunipatnam (d) Nagapattinam

19. In which of the following regions of India are shale gas resources found?

1. Cambay Basin
2. Cauvery basin
3. Krishna-Godavari Basin

Select the correct option using the code given below:

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

20. Recently, linking of which of the following rivers was undertaking?

(a) Cauvery and Tungabhadra
(b) Godavari and Krishna
(c) Mahanadi and Son
(d) Narmada and Tapti

21. Recently, which of the following States has explored the possibility of constructing an artificial inland port to be connected to the sea by a long navigational channel?

(a) Andhra Pradesh (c) Karnataka
(b) Chhattisgarh (d) Rajasthan

22. Which of the following is/are tributary/tributaries of Brahmaputra?

1. Dibang
2. Kameng
3. Lohit

Select the correct option using the code given below:

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

23. Which one of the following pairs of States of India indicates the easternmost and westernmost State?

(a) Assam and Rajasthan
(b) Arunachal Pradesh and Rajasthan
(c) Assam and Gujarat
(d) Arunachal Pradesh and Gujarat

24. Consider the following rivers:

1. Vamsadhara
2. Indravati
3. Pranahita
4. Pennar

Which of the above are tributaries of Godavari?

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

25. In a particular region in India, the local people train the roots of living trees into robust bridges across the streams. As time passes, these bridges become stronger. These unique 'living root bridges' are found in

(a) Meghalaya (c) Jharkhand
(b) Himachal Pradesh (d) Tamil Nadu

26. Consider the following States:

1. Arunachal Pradesh
2. Himachal Pradesh
3. Mizoram

In which of the above States do 'Tropical Wet Evergreen Forests' occur?

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

27. In India, in which one of the following types of forests is teak a dominant tree species?

(a) Tropical moist deciduous forest
(b) Tropical rain forest
(c) Tropical thorn scrub forest
(d) Temperate forest with grasslands

28. If you travel through the Himalayas, you are likely to see which of the following plants naturally growing there?

1. Oak
2. Rhododendron
3. Sandalwood

Select the correct option using the code given below:

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

29. Consider the following rivers:

1. Barak
2. Lohit
3. Subansiri

Which of the above flows/flow through Arunachal Pradesh?

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

30. Consider the following pairs :

	Wetlands	*Confluence of rivers*
1.	Harike Wetlands	Confluence of Beas and Sutluj/ Sutlej
2.	Keoladeo Ghana National Park	Confluence of Beas and Chambal
3.	Kolleru Lake	Confluence Musi and Krishna

Which of the above pairs is/are correctly matched?

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

31. Consider the following pairs :

	Hills	*Region*
1.	Cardamom Hills	Coromandel Coast
2.	Kaimur Hills	Konkan Coast
3.	Mahadeo Hills	Central India
4.	Mikir Hills	North-East India

Which of the above pairs are correctly matched?

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

32. Consider the following pairs:

	National Highway		*Cities connected*
1.	NH 4	:	Chennai and Hyderabad
2.	NH 6	:	Mumbai and Kolkata
3.	NH 15	:	Ahmedabad and Jodhpur

Which of the above pairs is/are correctly matched?

(a) 1 and 2 only (c) 1, 2 and 3
(b) 3 only (d) None

33. Which one of the following pairs of islands is separated from each other by the 'Ten Degree Channel'?

(a) Andaman and Nicobar
(b) Nicobar and Sumatra
(c) Maldives and Lakshadweep
(d) Sumatra and Java

34. With reference to 'Changpa' community of India, consider the following statement:

1. They live mainly in the State of Uttarakhand.
2. They rear the Pashmina goats that yield fine wool.
3. They are kept in the category of Scheduled Tribes.

Which of the statements given above is/are correct?

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

35. Consider the following pairs

	National Park	*The river flowing through the Park*
1.	Corbett National Park	Ganga
2.	Kaziranga National Park	Manas
3.	Silent Valley National Park	Kaveri

Which of the above pairs is/are correctly matched?

(a) 1 and 2 only (c) 1 and 3 only
(b) 3 only (d) None

36. The Narmada river flows to the west, while most other large peninsular rivers flow to the east. Why?

1. It occupies a linear rift valley.
2. It flows between the Vindhyas and the Satpuras.
3. The land slopes to the west from Central India.

Select the correct option using the codes given below:

(a) 1 only (c) 1 and 3 only
(b) 2 and 3 only (d) None

37. Consider the following pairs:

1. Nokrek Biosphere Reserve : Garo Hills
2. Logtak (Loktak) Lake : Barail Range
3. Namdapha National Park : Dafla Hills

Which of the above pairs is/are correctly matched?

(a) 1 only (c) 1, 2 and 3
(b) 2 and 3 only (d) None

38. Which one among the following industries is the maximum consumer of water in India?

(a) Engineering (c) Textiles
(b) Paper and pulp (d) Thermal power

39. Which of the following is/are the characteristics/ characteristics of Indian coal?

1. High ash content
2. Low sulphur content
3. Low ash fusion temperature

Select the correct option using the codes given below:

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

40. Which of the following statements regarding laterite soils of India are correct?

1. They are generally red in colour.
2. They are rich in nitrogen and potash.
3. They are well-developed in Rajasthan and UP.
4. Tapioca and cashew nuts grow well on these soils.

Select the correct option using the codes given below:

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

41. Consider the following statements:

1. Natural gas occurs in the Gondwana beds.
2. Mica occurs in abundance in Kodarma.
3. Dharwars are famous for petroleum.

Which of the statements given above is/are correct?

(a) 1 and 2 only (c) 2 and 3 only
(b) 2 only (d) None

42. Consider the following crops:

1. Cotton
2. Groundnut
3. Rice
4. Wheat

Which of these are Kharif crops?

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

43. Consider the following pairs :

1. Limboo (Limbu) : Sikkim
2. Karbi : Himachal Pradesh
3. Dongaria Kondh : Odisha
4. Bonda : Tamil Nadu

Which of the above pairs are correctly matched?

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

44. A particular State in India has the following characteristics:

1. It is located on the same latitude which passes through northern Rajasthan.
2. It has over 80% of its area under forest cover.
3. Over 12% of the forest cover constitutes Protected Area Network in this State.

Which one among the following States has all the above characteristics?

(a) Arunachal Pradesh (c) Himachal Pradesh
(b) Assam (d) Uttarakhand

45. Consider the following crops of India :

1. Cowpea
2. Green gram
3. Pigeon pea

Which of the above is/are used as pulse, fodder and green manure?

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

46. Consider the following crops of India:

1. Groundnut
2. Sesamum
3. Pearl millet

Which of the above is/are predominantly rainfed crop/crops?

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

47. When you travel in the Himalayas, you will see the following:

1. Deep gorges
2. U-turn river courses
3. Parallel mountain ranges
4. Steep gradients causing land-sliding

Which of the above can be said to be the evidences for the Himalayas being young fold mountains?

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

48. Consider the following statements:

1. The duration of the monsoon decreases from southern India to northern India.
2. The amount of annual rainfall in the northern plains of India decreases from east to west.

Which of the statements given above is/are correct?

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

49. Among the following States, which one has the most suitable climatic conditions for the cultivation of a large variety of orchids with a minimum cost of production, and can develop an export-oriented industry in this field?

(a) Andhra Pradesh (c) Madhya Pradesh
(b) Arunachal Pradesh (d) Uttar Pradesh

50. Two important rivers - one with its source in Jharkhand (and known by a different name in Odisha), and another, with its source in Odisha - merge at a place only a short distance from the coast of Bay of Bengal before flowing into the sea. This is an important site of wildlife and biodiversity and a protected area. Which one of the following could be this?

(a) Bhitarkanika (c) Gopalpur-on-sea
(b) Chandipur-on-sea (d) Simlipal

51. India is regarded as a country with 'Demographic Dividend'. This is due to

(a) Its high population in the age group below 15 years
(b) Its high population in the age group of 15-64 years
(c) Its high population in the age group above 65 years
(d) Its high total population

52. The Himalayan Range is very rich in species diversity. Which one among the following is the most appropriate reason for this phenomenon?

(a) It has a high rainfall that supports luxuriant vegetative growth.
(b) It is a confluence of different bio-geographical zones.
(c) Exotic and invasive species have not been invasive species have not been introduced in this region.
(d) It has less human interference.

53. The lower Gangetic plain is characterized by humid climate with high temperatures throughout the year. Which one among the following pairs of crops is most suitable for this region?

(a) Paddy and cotton (c) Paddy and jute
(b) Wheat and jute (d) Wheat and cotton

54. The Brahmaputra, Irrawaddy and Mekong rivers originate in Tibet narrow and parallel mountain ranges in their upper reaches. Of these rivers, Brahmaputra makes a "U" turn in its course to flow into India. This "U" turn is due to?

(a) Uplift of folded Himalayan series.'
(b) Syntaxial bending of geologically young Himalayas.
(c) Geo-tectonic disturbance in the tertiary folded mountain chains.
(d) Both (a) and (b) above

55. A state in India has the following characteristics:

1. Its northern part is arid and semi-arid.
2. Its central part produces cotton.
3. Cultivation of cash crops is predominant over food crops.

Which one of the following states has all of the above characteristics?

(a) Andhra Pradesh (c) Karnataka
(b) Gujarat (d) Tamil Nadu

56. With reference to soil conservation, consider the following practices:

1. Crop rotation
2. Sand fences
3. Terracing
4. Windbreaks

Which of the above are considered appropriate methods for soil conservation in India?

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

57. Following are the characteristics of an area in India:

1. Hot and humid climate
2. Annual rainfall 200 cm
3. Hill slopes up to an altitude of 1100 meters
4. Annual range of temperature 15°C to 30°C

Which one among the following crops are you most likely to find in the area described above?

(a) Mustard (c) Pepper
(b) Cotton (d) Virginia tobacco

58. In India, which type of forest among the following occupies the largest area?

(a) Montane Wet Temperate Forest
(b) Sub-tropical Dry Evergreen Forest
(c) Tropical Moist Deciduous Forest
(d) Tropical Wet Evergreen Forest

59. What are the possible limitations of India in mitigating global warming at present and in the immediate future?

1. Appropriate alternate technologies are not sufficiently available
2. India cannot invest huge funds in research and development
3. Many developed countries have already set up their polluting industries in India.

Which of the statements given above is/are correct?

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

60. Rivers that pass through Himachal Pradesh are

(a) Beas and Chenab only
(b) Beas and Ravi only
(c) Chenab, Ravi, and Satluj only
(d) Beas, Chenab, Ravi, Satluj, and Yamuna

61. With reference to the river Luni, which one of the following statements is correct?

(a) It flows into Gulf of Khambhat

(b) It flows into Gulf of Kuchchh

(c) It flows into Pakistan and merges with a tributary of Indus

(d) It is lost in the marshy land of the Rann of Kuchchh

62. Which one of the following pairs is not correctly matched?

	Dam/Lake		River
(a)	Govind Sagar	:	Satluj
(b)	Kolleru Lake	:	Krishna
(c)	Ukai Reservoir	:	Tapi
(d)	Wular Lake	:	Jhelum

63. If there were no Himalayan ranges, what would have been the most likely geographical impact on India?

1. Much of the country would experience the cold waves from Siberia.
2. Indo-Gangetic plain would be devoid of such extensive alluvial soils.
3. The pattern of monsoon would be different from what it is at present.

Which of the statements given above is/are correct?

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

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

64. The latitudes that pass through Sikkim also pass-through:

(a) Rajasthan (c) Himachal Pradesh

(b) Punjab (d) Jammu & Kashmir

65. With reference to the mineral resources of India, consider the following pairs:

	Mineral	*Natural sources in*
1.	Copper	Jharkhand
2.	Nickel	Orissa
3.	Tungsten	Kerala

Which of the pairs given above is/are correctly matched?

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

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

66. Tamil Nadu is a leading producer of mill-made cotton yarn in the country. What could be the reason?

1. Black cotton soil is the predominant type of soil in the state.
2. Rich pool of skilled labour is available

Which of the above is/are the correct reasons?

(a) 1 only (c) Both 1 and 2

(b) 2 only (d) Neither 1 nor 2

67. When you travel in certain parts of India, you will notice red soil. What is the main reason for this color?

(a) Abundance of magnesium

(b) Accumulated humus

(c) Presence of ferric oxides

(d) Abundance of phosphates

68. Which one of the following is the appropriate reason for considering the Gondwana rocks as the most important rock systems of India?

(a) More than 90% of limestone reserves of India are found in them

(b) More than 90% of India's coal reserves are found in them

(c) More than 90% of fertile black cotton soils are spread over them

(d) None of the reasons given above is appropriate in this context

69. Among the following cities, which one lies on a longitude closest to that of Delhi?

(a) Bengaluru (c) Nagpur

(b) Hyderabad (d) Pune

70. With reference to the current trends in the cultivation of sugarcane in India, consider the following statements:

1. A substantial saving in seed material is made when 'bud chip settlings' are raised in a nursery and transplanted in the main field.
2. When direct planting of setts is done, the germination percentage is better with single-budded setts as compared to setts with many buds.
3. If bad weather conditions prevail when setts are directly planted, single-budded setts have better survival as compared to large setts.
4. Sugarcane can be cultivated using settlings prepared from tissue culture.

Which of the statements given above is/are correct?

(a) 1 and 2 only (c) 1 and 4 only

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

71. With reference to Ocean Mean Temperature (OMT), which of the following statements is/are correct?

1. OMT is measured up to a depth of 260C isotherm which is 129 meters in the south-western Indian Ocean during January-March.
2. OMT collected during January – March can be used in assessing whether the amount of rainfall in monsoon will be less or more than a certain long-term mean.

Select the correct answer using the code given below:

(a) 1 only (c) Both 1 and 2

(b) 2 only (d) Neither 1 nor 2

72. The black cotton soil of India has been formed due to the weathering of

(a) brown forest soil

(b) fissure volcanic rock

(c) granite and schist

(d) shale and limestone

73. With reference to the Indus river system, of the following four rivers, three of them pour into one of them which joins the Indus direct. Among the following, which one is such river that joins the Indus direct?

(a) Chenab (c) Ravi

(b) Jhelum (d) Sutlej

74. With reference to India, Didwana, Kuchaman, Sargol and Khatu are the names of

(a) glaciers (c) Ramsar sites

(b) mangrove areas (d) saline lakes

75. Consider the following rivers:

1. Brahmani
2. Nagavali
3. Subarnarekha
4. Vamsadhara

Which of the above rise from the Eastern Ghats?

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

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

76. In the context of India's preparation for Climate-Smart Agriculture, consider the following statements:

1. The 'Climate-Smart Village' approach in India is a part of a project led by the Climate Change, Agriculture and Food Security (CCAFS), an international research programme.
2. The project of CCAFS is carried out under Consultative Group on International Agricultural Research (CGIAR) headquartered in France.
3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.

Which of the statements given above are correct?

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

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

77. With reference to India, the terms 'Halbi Ho and Kui' pertain to:

(a) dance forms of Northwest India

(b) musical instruments

(c) pre-historic cave paintings

(d) tribal languages

78. Consider the following pairs

	Peak		***Mountains***
1.	Namcha Barwa	:	Garhwal Himalaya
2.	Nanda Devi	:	Kumaon Himalaya
3.	Nokrek	:	Sikkim Himalaya

Which of the pairs given above is/are correctly matched?

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

(b) 2 only (d) 3 only

79. With reference to India, consider the following statements :

1. Monazite is a source of rare earths.
2. Monazite contains thorium.
3. Monazite occurs naturally in the entire Indian coastal sands in India.
4. In India, Government bodies only can process or export monazite.

Which of the statements given above are correct?

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

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

80. Consider the following pairs:

	Wetland		***Lake Location***
1.	Hokera Wetland	:	Punjab
2.	Renuka Wetland	:	Himachal Pradesh
3.	Rudrasagar Lake	:	Tripura
4.	Sasthamkotta Lake	:	Tamil Nadu

How many pairs given above are correctly matched?

(a) Only one pair (c) Only three pairs

(b) Only two pairs (d) All four pairs

81. Consider the following States :

1. Andhra Pradesh
2. Kerala
3. Himachal Pradesh
4. Tripura

How many of the above are generally known as tea-producing States?

(a) Only one State (c) Only three States

(b) Only two States (d) All four States

82. Consider the following pairs:

	Reservoirs		*States*
1.	Ghataprabha	:	Telangana
2.	Gandhi Sagar	:	Madhya Pradesh
3.	Indira Sagar	:	Andhra Pradesh
4.	Maithon	:	Chhattisgarh

How many pairs given above are not correctly matched?

(a) Only one pair
(b) Only two pairs
(c) Only three pairs
(d) All four pairs

83. Consider the following statements

1. Gujarat has the largest solar park in India.
2. Kerala has a fully solar powered International Airport.
3. Goa has the largest floating solar photovoltaic project in India.

Which of the statements given below is/are correct?

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

WORLD REGIONAL GEOGRAPHY

1. Which one of the following is a part of the Congo Basin?

(a) Cameroon
(b) Nigeria
(c) South Sudan
(d) Uganda

2. Consider the following pairs:

Area of conflict mentioned in news	*Country where it is located*
1. Donbas	Syria
2. Kachin	Ethiopia
3. Tigray	North Yemen

How many of the above pairs are correctly matched?

(a) Only one
(b) Only two
(c) All three
(d) None

3. Consider the following pairs:

Regions often mentioned in news	*Reason for being in news*
1. North Kivu and Ituri	War between Armenia and Azerbaijan
2. Nagorno-Karabakh	Insurgency in Mozambique
3. Kherson and aporizhzhia	Dispute between Israel and Lebanon

How many of the above pairs are correctly matched?

(a) Only one
(b) Only two
(c) All three
(d) None

4. Consider the following countries:

1. Bulgaria
2. Czech Republic
3. Hungary
4. Latvia
5. Lithuania
6. Romania

How many of the above-mentioned countries share a land border the Ukraine?

(a) Only two
(b) Only three
(c) Only four
(d) Only five

5. Consider the following pairs:

	Sea		*Bordering country*
1.	Adriatic Sea	:	Albania
2.	Black Sea	:	Croatia
3.	Caspian Sea	:	Kazakhstan
4.	Mediterranean Sea	:	Morocco
5.	Red Sea	:	Syria

Which of the pairs given above are correctly matched?

(a) 1, 2 and 4 only
(b) 1, 3 and 4 only
(c) 2 and 5 only
(d) 1, 2, 3, 4 and 5

6. Consider the following pairs:

Region sometimes mentioned in news	*Country*
1. Catalonia	Spain
2. Crimea	Hungary
3. Mindanao	Philippines
4. Oromia	Nigeria

Which of the pairs given above are correctly matched?

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

(b) 3 and 4 only (d) 2 and 4 only

7. Which of the following has/have shrunk immensely/ dried up in the recent past due to human activities?

1. Aral Sea
2. Black Sea
3. Lake Baikal

Select the correct option using the code given below:

(a) 1 only (c) 2 only

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

8. Consider the following pairs:

Towns sometimes mentioned in news	*Country*
1. Aleppo	Syria
2. Kirkuk	Yemen
3. Mosul	Palestine
4. Mazarisharif	Afghanistan

Which of the pairs given above are correctly matched?

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

(b) 1 and 4 only (d) 3 and 4 only

9. Very recently, in which of the following countries have lakhs of people either suffered from severe famine/acute malnutrition or died due to starvation caused by war/ethnic conflicts?

(a) Angola and Zambia

(b) Morocco and Tunisia

(c) Venezuela and Colombia

(d) Yemen and South Sudan

10. The term "two-state solution" is sometimes mentioned in the news in the context of the affairs of

(a) China (c) Iraq

(b) Israel (d) Yemen

11. The Mediterranean Sea is a border of which of the following countries?

1. Jordan
2. Iraq
3. Lebanon
4. Syria

Select the correct option using the code given below:

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

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

12. The area is known as 'Golan Heights' sometimes appears in the news in the context of the events related to

(a) Central Asia (c) South-East Asia

(b) Middle East (d) Central Africa

13. Which one of the following countries of South-West Asia does not open out to the Mediterranean Sea?

(a) Syria (c) Lebanon

(b) Jordan (d) Israel

14. The Substitution of steel for wooden ploughs in agricultural production is an example of

(a) Labor-augmenting technological progress

(b) Capital-augmenting technological progress

(c) Capital-reducing technological progress

(d) None of the above

15. Turkey is located between

(a) The Black Sea and Caspian Sea

(b) The Black Sea and Mediterranean Sea

(c) Gulf of Suez and the Mediterranean Sea

(d) Gulf of Aqaba and the Dead Sea

16. What is the correct sequence of occurrence of the following cities in South-East Asia as one proceeds from south to north?

1. Bangkok
2. Hanoi
3. Jakarta
4. Singapore

Select the correct option using the code given below:

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

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

17. Which one of the following pairs is correctly matched?

Geographical Region	**Featur**
(a) Abyssinian Plateau:	Arabia
(b) Atlas Mountains:	North - Western Africa
(c) Guiana Highlands:	South - Western Africa
(d) Okavango Basin:	Patagonia

18. With reference to the usefulness of the by-products of sugar industry, which of the following statements is/are correct?

1. Bagasse can be used as biomass fuel for the generation of energy.
2. Molasses can be used as one of the feedstocks for the production of synthetic chemical fertilizers.

3. Molasses can be used for the production of ethanol.

Select the correct option using the codes given below:

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

19. Which of the following is the chief characteristic of 'mixed farming'?

(a) Cultivation of both cash crops and food crops
(b) Cultivation of two or more crops in the same field
(c) Rearing of animals and cultivation of crops together
(d) None of the above.

20. Between India and East Asia, the navigation time and distance can be greatly reduced by which of the following?

1. Deepening the Malacca straits between Malaysia and Indonesia.
2. Opening a new canal across the kra isthmus between the Gulf of Siam and Andaman sea.

Which of the statements given above is/are correct?

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

21. Southeast Asia has captivated the attention of the global community over space and time as a geostrategic-ally significant region. Which among the following is the most convincing explanation for this global perspective?

(a) It was the hot theatre during the second world war.
(b) Its location between the Asian powers of China and India.
(c) It was the arena of superpower confrontation during the cold war period.
(d) Its location between the Pacific and Indian oceans and its pre-eminent maritime character.

22. As per UN-Habitat's Global Report on Human Settlements 2009, which one among the following regions has shown the fastest growth rate of urbanization in the last three decades?

(a) Asia
(b) Europe
(c) Latin America and Caribbean
(d) North America

23. Which one of the following can one come across if one travels through the Strait of Malacca?

(a) Bali (c) Java
(b) Brunei (d) Singapore

24. Consider the following pairs:

	River		***Flows into***
1.	Mekong	:	Andaman Sea
2.	Thames	:	Irish Sea
3.	Volga	:	Caspian Sea
4.	Zambezi	:	Indian Ocean

Which of the pairs given above is/are correctly matched?

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

25. Siachen Glacier is situated to the

(a) East of Aksai Chin
(b) East of Leh
(c) North of Gilgit
(d) North of Nubra Valley

26. Gandikota canyon of South India was created by which one of the following rivers ?

(a) Cauvery (c) Pennar
(b) Manjira (d) Tungabhadra

27. The term "Levant" often heard in the news roughly corresponds to which of the following regions?

(a) Region along the eastern Mediterranean shores
(b) Region along North African shores stretching from Egypt to Morocco
(c) Region along Persian Gulf and Horn of Africa
(d) The entire coastal areas of Mediterranean Sea

28. Consider the following countries:

1. Azerbaijan
2. Kyrgyzstan
3. Tajikistan
4. Turkmenistan
5. Uzbekistan

Which of the above have borders with Afghanistan?

(a) 1, 2 and 5 only (c) 3, 4 and 5 only
(b) 1, 2, 3 and 4 only (d) 1, 2, 3, 4 and 5

29. Consider the following statements:

1. Bidibidi is a large refugee settlement in north-western Kenya.
2. Some people who fled from South Sudan civil war live in Bidibidi.
3. Some people who fled from civil war in Somalia live in Dadaab refugee complex in Kenya.

Which of the statements given above is/are correct?

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

30. Consider the following countries

1. Armenia
2. Azerbaijan
3. Croatia
4. Romania
5. Uzbekistan

Which of the above are members of the Organization of Turkic States?

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

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

31. Which one of the following statements best reflects the issue which Senkaku Islands, sometimes mentioned in the news?

(a) It is generally believed that they are artificial islands made by a country around South China Sea.

(b) China and Japan engage in maritime disputes over these islands in East China Sea

(c) A permanent American military base has been set up there to help Taiwan to increase its defence capabilities.

(d) Through International Courts of Justice declared them as no man's land, some South-East Asian countries claim them.

32. Consider the following pairs

	Country	**Important reason for being in the news recently**
1.	Chad	Setting up of permanent military base by Chine
2.	Guinea	Suspension of Constitution and Government by military
3.	Lebanon	Severe and prolonged economic depression
4.	Tunisia	Suspension of Parliament by President

How many pairs given above are correcly matched?

(a) Only one pair (c) Only three pairs

(b) Only two pairs (d) All four Pairs

33. Consider the following pairs:

	Region often mentioned, in the news	***Country***
1.	Anatolia	- Turkey
2.	Amhara	- Ethiopia
3.	Cabo Delgado	- Spain
4.	Catalonia	- Italy

How many pairs given above are correctly matched?

(a) Only one pair (c) Only three pairs

(b) Only two pairs (d) All four pairs

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GEOGRAPHY
ANSWERS

GEOMORPHOLOGY

1. Exp. (c)

- **Statement 1 is correct:** P waves are generally recorded earlier than S waves. P waves, also known as primary waves or compressional waves, are the first waves to arrive at a seismograph station after an earthquake occurs. These waves are characterized by their ability to travel through solids, liquids, and gases. S waves travel slower and arrive at the seismograph station after the P waves. Unlike P waves, S waves can only travel through solids and are responsible for the side-to-side shaking motion during an earthquake.
- **Statement 2 is correct: In P waves (primary waves or compressional waves), the individual particles vibrate back and forth in the same direction as the wave propagation.** This means that as the P wave moves through a medium, such as the Earth's crust during an earthquake, the particles within the medium oscillate parallel to the direction of the wave. In S waves (secondary waves or shear waves), the particles vibrate in a perpendicular direction to the direction of wave propagation. **Unlike P waves, which cause particles to compress and expand parallel to the wave's direction,** S waves cause particles to move in a perpendicular direction. This motion is commonly described as an up-and-down or side-to-side motion, where the particles oscillate at right angles to the direction of wave propagation.

2. Exp. (a)

- The Sun is directly overhead at "high-noon" on the equator twice per year, at the two equinoxes. On the Arctic Circle, the Sun does not set at all on the Summer Solstice which occurs on 21st June. On that one day, the Sun traces a complete circle just above the horizon as the Earth rotates.

3. Exp. (d)

Sixth Mass Extinction

- Scientists have warned that the 6th mass extinction of life on earth is unfolding more quickly than feared.
- The main drivers of wildlife decline are habitat loss, overconsumption, pollution, invasive species, disease, as well as poaching in the case of tigers, elephants, rhinos and other large animals prized for their body parts.
- The ultimate cause of all these factors is human over population and continued population growth & over consumption.

4. Exp. (c)

Impact of Continental Drift on Evolution

- According to continental drift theory of Wegener, all the continents formed a single continental mass and mega ocean surrounded the same. The supercontinent was named Pangaea, which meant all earth. The mega-ocean was called Panthalassa, meaning all water.
- According to it, organisms of single landmass were redistributed around the world and adapted to their respective climatic conditions and developed specific traits, which led to evolution of different species over thousands of years of evolution.

Role of glacial cycle in evolution of organisms

- The Pleistocene glacial periods have been regarded as major factors influencing the geographical distribution, demographic dynamics, and patterns of genetic diversity of species.
- During different periods of the glacial cycle, organisms adapted to changing climatic conditions which led to formation of different traits among them. This led to evolution of organisms.

5. Exp. (d)

Variation in the length on day time and night

- The Earth revolves around the sun on an axis always remains inclined to 25 degrees and tilted to one side. Because of this inclination, the Northern Hemisphere remains inclined towards the sun or faces the sun during half of the year.
- Therefore, a large part of this hemisphere receives sunlight. During this part of the year, the days are longer. While in the Southern Hemisphere which is away from the sun, has shorter days and longer nights during this period.
- During the other half of the year, the Southern Hemisphere has longer days and shorter nights and vice-versa.

6. Exp. (c)

Distribution of water on the Earth's surface

- The distribution of water on the Earth's surface is extremely uneven.
- Only 3% of water on the surface is fresh, the remaining 97% resides in the ocean.
- Of freshwater, 69% reside in glaciers, 30% underground, and less than 1% is located in lakes, rivers, and swamps.
- Only one percent of the water on the Earth's surface is usable by humans, and 99% of the usable quantity is situated underground.

7. Exp. (d)

Dynamic changes on Earth surface

- Metamorphism of rocks occurs due to temperature change caused by electromagnetic radiation, which is essentially a dynamic change.
- The energy emanating from within the earth is the main force behind endogenic geomorphic processes. This energy is mostly generated by radioactivity, rotational and tidal friction and primordial heat from the origin of the earth. The process of cycle of erosion occurs due to it.
- Gravity being a directional force activates all downslope movements of matter also causes stresses on the earth's materials.
- Plate movement results into continent building. This energy due to geothermal gradients and heat flow from within induces diastrophism and volcanism in the lithosphere.
- Rotation of the Earth induces Coriolis force in the mantle of the earth which leads to mantle convection. Hence, it induces a Coriolis force in it.
- Revolution of the earth causes changes in seasons which leads to changes on the earth's surface such as landslides, earth flow, mudflow e.t.c causing dynamic changes.

8. Exp. (b)

Evolution of Atmosphere and Hydrosphere

- The present composition of earth's atmosphere is chiefly contributed by nitrogen and oxygen. There are three stages in the evolution of the present atmosphere.
- The first stage is marked by the loss of primordial atmosphere.
- In the second stage, the hot interior of the earth contributed to the evolution of the atmosphere.
- Finally, the composition of the atmosphere was modified by the living world through the process of photosynthesis. The early atmosphere, with hydrogen and helium, is supposed to have been stripped off as a result of the solar winds. This happened not only in case of the earth but also in all the terrestrial planets, which were supposed to have lost their primordial atmosphere through the impact of solar winds.
- During the cooling of the earth, gases and water vapor were released from the interior solid earth. This started the evolution of the present atmosphere.
- The early atmosphere largely contained water vapor, nitrogen, carbon dioxide, methane, ammonia and very little of free oxygen. The process through which the gases were outpoured from the interior is called degassing. Continuous volcanic eruptions contributed water vapor and gases

9. Exp. (c)

Location of Star

- Polestar, is also called (Northern Hemisphere) North Star, the brightest star that appears nearest to either celestial pole at any particular time.
- Polestar always points to the north, Then 5 km is just sidetrack

10. Exp. (b)

Evolution

- Shark – Tortoise – Otter

11. Exp. (d)

Major Minerals

- On 10th February 2015 bentonite has been declared as 'Minor Mineral' hence the production is not available with IBM. Bentonite is exploited mainly by manual and at places by semi-mechanised methods by deploying shovels and dumpers for mining, haulage, etc.
- The major minerals cover fuel minerals consisting of coal, lignite, petroleum & natural gas and other major minerals i.e. metallic minerals including atomic minerals and non-metallic minerals. Minor minerals consist of materials such as marble, slate, shale etc

OCEANOGRAPHY

1. Exp. (d)

- **Statement 1 is incorrect**: The temperature **contrast between continents and oceans is generally greater during summer than in winter**. This phenomenon is primarily due to the differences in heat capacity and thermal properties of land and water. Water has a higher heat capacity than land, meaning it requires more energy to raise its temperature compared to an equivalent mass of land. As a result, oceans tend to heat up and cool

down more slowly than landmasses. During the summer, when solar radiation is at its peak, land surfaces absorb and retain heat more efficiently than bodies of water. This leads to higher land temperatures during the summer season.

- **Statement 2 is correct: The specific heat capacity of water is higher than that of land surfaces.** Specific heat capacity refers to the amount of heat energy required to raise the temperature of a given substance by a certain amount. Water has a higher specific heat capacity compared to land surfaces, which means it can absorb and store more heat energy for a given mass. As a result, water takes longer to heat up and cool down compared to land. During the summer, when solar radiation is more intense, land surfaces heat up quickly and reach higher temperatures compared to bodies of water. Conversely, during the winter, land surfaces cool down more rapidly than water, leading to relatively warmer ocean temperatures.

2. Exp. (b)

The Equatorial Countercurrents

- The equatorial countercurrents are driven by a distinct surface wind pattern in the tropics. Strong westward trade winds result in westward surface flow in most of the tropical Atlantic and Pacific Oceans. However, several hundred mi. (km.) north of the equator the winds are much weaker, in comparison.
- The stronger winds to the south pile up water where the winds are weak. As a result, the surface of the ocean can be up to 6 in. (15 cm.) higher and the thermocline (region of strongest decrease of temperature with increasing depth) as much as 328 ft. (100 m.) deeper than it is directly to the north. The excess water flows eastward under the influence of the Earth's rotation, giving rise to the equatorial countercurrents.

3. Exp. (d)

The Ocean's Tide

- The periodical rise and fall of the water level in oceans and sea, once or twice a day, due to the gravitational pull of the sun and the moon, is called a tide.
- There are three major forces causing an occurrence of tides they are
  - Moon s gravitational pull
  - Sun s gravitational pull.
  - The centrifugal force which acts opposite to gravitational pull of the earth.

4. Exp. (c)

Ocean currents

- The mixing of warm and cold currents help to replenish the oxygen and favour the growth of planktons which is the regions are rich in microscopic marine plants and animals.
- These are crucial for the survival of marine ecosystems.
- Hence these regions form excellent fishing grounds as phytoplankton is the primary source of food for the fish.
- For example, the Great Banks near Newfoundland is formed by the mixing of cold Labrador current with the warm Gulf Stream.

5. Exp. (d)

Impact of ocean acidification

- Many marine organisms rely on equilibrated chemical conditions and pH levels in the ocean to build their calcium-based shells and other structures. These are badly affected due to change in PH of ocean water.
- Coral reefs also contain calcium carbonate which gets dissolved in acidified water more quickly. This makes them vulnerable to acidification.
- Reduction in the surface cover of newly recruited reef-building crustose coralline algae under acidified conditions affects recruitment of coral larvae, which impacts the growth of phytoplankton.
- Another important consideration is the possible interactive effects of climate change and acidification such as the warming of surface waters and reduced nutrient availability.

6. Exp. (b)

Factors which influence the ocean currents:

- Another major factor in the creation of currents is water density, caused by the amount of salt in a body of water, and its temperature.
- Water contours to the topography of the ocean floor or bed. If the ocean bottom "drops out," like in a valley or trench, the moving water will move downward.
- If there is a rise in the ocean bottom, like a ridge or mountain, the water moving along it will be forced upward. The sudden upward or downward change of direction causes water displacement, creating a current.
- When a rotating object collides with another moving or stationery force, it creates a new motion.
- The Earth's rotation creates two currents: one, a clockwise movement of water in the Northern Hemisphere; the other, a counter-clockwise movement of water in the Southern hemisphere. When these currents are deflected by land masses, they create huge ocean currents called gyres.

7. **Exp. (a)**

Distribution of water on the Earth's surface

- Only 3% of the water on the surface is fresh, the remaining 97% resides in the ocean.
- **Of freshwater, 69% reside in glaciers, 30% underground, and less than 1% is located in lakes, rivers, and swamps.**
- Only 1% of the water on the Earth's surface is usable by humans, and 99% of the usable quantity is situated underground.

8. **Exp. (b)**

Water of Earth

- Ocean water: 97.2 percent
- Glaciers and other ice: 2.15 percent
- Groundwater,: 0.61 percent
- Fresh water lakes: 0.009 percent
- Inland seas: 0.008 percent
- Soil Moisture: 0.005 percent
- Atmosphere: 0.001 percent
- Rivers: 0.0001 percent.

9. **Exp. (b)**

Oceanic Minerals

- **Statement 1 is incorrect:** With the establishment of the United Nations Convention on the Law of the Sea in 1982 and the entry into force of the ISA in 1994, exploration activities for mineral resources in the area began to be regulated under exploration contracts. Originally, exploration activities were predominantly undertaken by national agencies, until 2010, when private companies became involved and a polymetallic-nodule-mining industry was born.
- **Statement 2 is correct:** India's exclusive rights to explore polymetallic nodules from seabed in the Central Indian Ocean Basin (CIOB) have been extended by five years. These rights are over 75000 sq. km of area in international waters allocated by the International Seabed Authority for developmental activities for polymetallic nodules.
- **Statement 3 is correct:** In 1972, a young ecologist named Hjalmar Thiel ventured to a remote part of the Pacific Ocean known as the Clarion–Clipperton Zone (CCZ). The seafloor there boasts one of the world's largest untapped collections of rare-earth elements. Some 4,000 meters below the ocean surface, the abyssal ooze of the CCZ holds trillions of polymetallic nodules — potato-sized deposits loaded with copper, nickel, manganese, and other precious ores.

CLIMATOLOGY

1. **Exp. (a)**

- **Pair 1 is incorrectly matched:**A nebula is a giant cloud of dust and gas in space.
- **Pair 2 is incorrectly matched:**Cepheidsare stars which brigthen and dim periodically.
- **Pair 3 is correctly matched:**A **neutron starforms when the core of a massive star runs out of fuel and collapses**. This produces a shock wave that blows away the rest of the star in a supernova explosion. Neutron stars typically pack more mass than our Sun into a ball about the size of a city, but above a certain mass, they must collapse into black holes.
  - Pulsars are rotating neutron stars observed to have pulses of radiation at very regular intervals that typically range from milliseconds to seconds. Pulsars have very strong magnetic fields which funnel jets of particles out along the two magnetic poles. These accelerated particles produce very powerful beams of light.

2. **Exp. (c)**

- **Option a is incorrect**: On average, the insolation received at the equator is roughly **two to three times that received at the poles, rather than 10 times**. This variation in insolation is one of the primary factors contributing to the temperature differences between equatorial and polar regions.
- **Option b is incorrect**: Solar radiation consists of various wavelengths, including ultraviolet (UV), visible light, and infrared (IR). While it is true that a significant portion of solar radiation is in the form of infrared rays, it is not accurate to state that they constitute two-thirds of insolation. The exact proportion of infrared radiation in insolation can vary depending on multiple factors, such as atmospheric conditions and the position of the sun.
- **Option c is correct**: Infrared waves, **specifically in the form of longwave radiation, are absorbed by certain greenhouse gases, including water vapor, in the lower atmosphere**. Water vapor is the most abundant greenhouse gas in the Earth's atmosphere, and it has strong absorption properties in the infrared portion of the electromagnetic spectrum. As infrared radiation passes through the atmosphere, water vapor molecules can absorb and re-emit a significant portion of the longwave radiation. This process

contributes to the greenhouse effect, where certain gases trap heat in the atmosphere, leading to an overall increase in global temperatures.

- **Option d is incorrect: Infrared waves are not part of the visible spectrum of electromagnetic waves in solar radiation.** The visible spectrum refers to the range of electromagnetic waves that are visible to the human eye, which includes wavelengths between approximately 400 to 700 nanometers. Infrared waves, on the other hand, exist at longer wavelengths beyond the red end of the visible spectrum. They have wavelengths longer than approximately 700 nanometers. Infrared radiation is typically divided into three categories: near-infrared (NIR), mid-infrared (MIR), and far-infrared (FIR), with increasing wavelengths.

3. Exp. (b)

Dew

- Dew is the water droplets formed by condensation of water vapor on a relatively cold surface of an object. It forms when the temperature of an object drops below the dew point temperature.
- When there is cloudy weather condition, terrestrial radiation is radiated back to the earth's surface after reflection from clouds. This leads to formation of hothouse (Greenhouse) condition due to which temperature on earth's surface is relatively higher. Hence, condition becomes unfavorable for the formation of dew.

4. Exp. (b)

Indian Ocean Dipole (IOD)

- The Indian Ocean Dipole is an irregular oscillation of sea - surface temperatures in which the western Indian Ocean becomes alternately warmer and then colder than the eastern part of the ocean.
- An IOD can either aggravate or weaken the impact of El Nino on Indian monsoon. If there is a positive IOD, it can bring good rains to India despite of an El Nino year.

5. Exp. (b)

Conditions Favourable for Tropical Cyclone Formation

- Large sea surface with temperature higher than 27° C,
- Presence of the Coriolis force enough to create a cyclonic vortex,
- Small variations in the vertical wind speed,
- A pre-existing weak low-pressure area or low-level-cyclonic circulation,
- Upper divergence above the sea level system,

In the South Atlantic and South-Eastern Pacific regions

- For cyclone formation, a sea temperature of at least 26 degree Celsius is needed.
- In the South-eastern pacific and South Atlantic region, cold currents are found. This leads to lower sea temperatures. Hence, cyclones don't form there.
- The most proximate reasons for the lack of cyclones in the South Atlantic and South Eastern Pacific ocean are the rare occurrence of the Inter-Tropical Convergence Zone (ITCZ) over the region.
- It becomes very difficult or nearly impossible to have genesis of tropical cyclones, unless synoptic vorticity (it is a clockwise or counterclockwise spin in the troposphere) and convergence (i.e., large scale spin and thunderstorm activity) are provided by ITCZ.

6. Exp. (b)

Westerlies

- Westerlies are prevailing winds from the west toward the east in the middle latitudes between 30 and 60 degrees latitude.
- **They blow between 30º N and 60º N and 60º S and 30º S, not 30º N and 60º S.**

Western Disturbance

- Western Disturbance occurs in India, Pakistan, Bangladesh and Nepal to describe an extra-tropical storm originating in the Mediterranean that brings sudden winter rain and snow to the north-western parts of the Indian subcontinent.
- This is a non-monsoonal precipitation pattern driven by the Westerlies.

7. Exp. (b)

Equatorial Climate

- Regions with this climate experience high temperatures all year round. The average monthly temperatures are about 26 – 28 degrees Celsius. The annual temperature range is very small. The annual temperature range may be as low as 3 degrees Celsius. The diurnal or daily temperature range is usually greater. Humidity is usually very high.
- Another major characteristic of this climate is the high rainfall. These regions usually experience 2000 mm of rainfall or more in a year. Rainfall is high for most of the year. Many equatorial regions are affected by the ITCZ. As the ITCZ passes over these areas it brings heavy rainfall and thunderstorms. In some areas, the ITCZ causes two periods of very heavy rainfall every year.

8. Exp. (c)

Monsoon climate

- Monsoons are basically seasonal winds that reverse their direction according to the change in season. They are hence, periodic winds.

- The monsoons travel from the sea to the land in summers and from land to the sea during winters, hence, they are a double system of seasonal winds.
- India gets southwest monsoon winds in the summers and northeast monsoons during the winters. The former arise because of the formation of intense low-pressure system over the Tibetan Plateau. The latter arise due to the high pressure cells that are formed over the Siberian and Tibetan plateaus.

9. Exp. (d)

Characteristics of equatorial forests

- Tall, closely grown and dense canopy is found the equatorial rain forest.
- The equatorial rain forest has huge species diversity.
- Species diversification of epiphytes is also very high in equatorial rain forests.

10. Exp. (c)

Atmospheric Temperature, Density & Moisture

- The atmosphere allows long wave incoming solar radiation and do not let go outgoing shortwave terrestrial radiation which heats up the atmosphere upwards from earth's surface.
- Moisture decreases as we go up from the earth's surface constantly. After the tropopause, water vapor doesn't exist in the atmosphere.
- The density of air decreases as we go up from the earth's surface. There are two reasons:
  - At higher altitudes, there is less air pushing down from above,
  - Gravity is weaker farther from Earth's center. So at higher altitudes, air molecules can spread out more, and air density decreases.

11. Exp. (d)

Savanna climate

- Savanna climate is a transitional type of climate found between the equatorial forests & trade wind hot deserts.
- It is confined within the tropics (Tropic of Cancer & Tropic of Capricorn) & is best developed in Sudan, where dry & wet climate are most distinct, hence named Sudan climate.
- It covers much of Africa (Keya, Nigeria, Gambia) as well as large areas of Australia, South America (Brazilian highlands), and India.
- Tropical savanna climates are relatively hot since they lie within the tropical latitudes.
- The dry season in savanna grasslands is cooler than the wet season by a few degrees. It has well defined wet and dry season.

12. Exp. (d)

La Nina

- La Nina is characterized by unusually cold ocean temperatures in eastern Pacific ocean or western coast of South America, not the equatorial Indian Ocean whereas El Nino is characterized by unusually warm ocean temperatures in the equatorial Pacific Ocean.
- El Nino has adverse effect on south-west monsoon of India and La Nina has positive effect on monsoon climate.

13. Exp. (a)

Westerlies

- The westerlies are strongest in the Western Hemisphere and at lines when the pressure is lower over the poles, while they are weakest in the Southern Hemisphere & when pressures are higher over the poles.
- The westerlies in the Southern Hemisphere are stronger and more persistent because they mostly blow over open sea rather than land.

14. Exp. (a)

Tropical Rainforest and Tropical Deciduous Forest

- Tropical soils rapidly become inhospitable to growth due to swift leaching of nutrients caused by heavy rains and intense sunlight once they are cut. Hence their re-growth is not possible after their cutting down.
- In addition, many tropical hardwood trees are dependent on certain animal species for pollination, seed dispersal, and seed processing. The seeds of many tropical rainforest species are large (since they germinate in the shade of the canopy and must have enough food reserves to grow in the low light conditions of the forest floor) and require animal dispersers (wind or other mechanical means often are not sufficient for dispersing seeds of this size).
- The loss of these dispersal species when forest is leveled, means tree seeds are unlikely to be dispersed into cleared areas. Therefore these important forest tree species will not return.

15. Exp. (a)

Formation of African and Eurasian desert belt

- Subtropical high-pressure cells facilitate the development of deserts due to formation of anti-cyclonic conditions.
- **Tropical deserts are influenced by cold currents, not hot currents.**

16. Exp. (d)

Tropical Rainforest

- Tropical Rain forests have an annual rainfall of 1,750 millimeters to 2,000 millimeters. According to above data it is 1734 mm.
- Mean monthly temperature of the rainforest is also close to the above data which is around 18°C.

17. Exp. (b)

El Nino

- **Normal El Nino forms in the eastern pacific ocean not the Central Pacific ocean whereas El-Nino Modoki is associated with strong anomalous warming in the central tropical Pacific and cooling in the eastern and western tropical Pacific not in Eastern Pacific ocean.**
- Normal EI Nino results in diminished hurricanes in the Atlantic ocean but El Nino Modoki results in a greater number of hurricanes with greater frequency. It is due to shift in walker cells of different oceans due to El-Nino effect.

18. Exp. (c)

Albedo

- Albedo is the portion of solar energy reflected from the surface of the Earth back into space. It is a reflection coefficient and has a value of less than one.
- Land covered with fresh snow reflects maximum sunlight as compared to rest three because it has maximum albedo.

19. Exp. (a)

Mediterranean climate

- Mediterranean climate is characterized by mild and wet winter season. Citrus fruits and grapes are grown in these regions. Evergreen oak trees are one of the important features of this type of climate.
- Mediterranean climate is found between the 30ºN and 45º N latitudes. This climate is often found on the western sides of continents. The mediterranean climate gets its name from the climate found around the Mediterranean Sea.
- The climate is known for warm to hot, dry summers and mild to cool, wet winters.

20. Exp. (d)

Contributors to the warming up of the atmosphere

- Soot contains carbon black as a particulate matter which absorbs maximum amount of insolation.
- It heats up any surface on which it lies by absorbing carbon-di-oxide and hence contributes in global warming.
- **Sulfur hexafluoride** is a greenhouse gas that has one of the highest global warming potentials.
- Water Vapor is the most abundant greenhouse gas in the atmosphere.
- As a greenhouse gas, the higher concentration of water vapor is able to absorb more thermal IR energy radiated from the Earth, thus further warming the atmosphere.

21. Exp. (d)

Ionosphere and how it impacts radio signal

- The ionosphere is a region of the upper atmosphere where there are large concentrations of free ions and electrons. While the ions give the ionosphere its name, but it is the free electrons that affect the radio waves and radio communications. In particular the ionosphere is widely known for affecting signals on the short wave radio bands where it "reflects" signals enabling these radio communications signals to be heard over vast distances.

22. Exp. (c)

The stratosphere is preferred by commercial airliners because:

- The stratosphere is free from the violent weather changes which occur below in the Troposphere.
- There are no clouds and the air is dry with little water vapour.
- There are no vertical convection in the stratosphere.

23. Exp. (c)

Coriolis Force

- Due to the Coriolis effect all winds/objects move towards their right in the northern hemisphere and towards their left in the southern hemisphere with respect to the rotating earth. Thus, in the northern hemisphere winds blow counter-clockwise along the centers of low pressure while clockwise in the southern hemisphere.
- The Coriolis effect has a zero value at the equator while it increases progressively towards the poles.

24. Exp. (d)

Thunderstorm

- Thunder is the sound caused by a lightning discharge.
- Lightning heats the air in its path and causes a large over-pressure of the air within its channel.
- The channel expands supersonically into the surrounding air as a shock wave and creates an acoustic signal that is heard as thunder.

25. Exp. (c)

Jet Stream Cyclone

- **Statement 1 is incorrect:** Jet Streams occur in both Northern and Southern Hemisphere.
- **Statement 3 is incorrect:** The eye is the region of lowest surface pressure and warmest temperatures aloft (in the upper levels) – the eye temperature may be 10°C warmer or more at an altitude of 12 km than the surrounding environment, but only 0-2°C warmer at the

surface in the tropical cyclone. So, statement 3 is incorrect.

26. Exp. (c)

Wind System

- **Statement 1 is correct:** Trade wind generates the equatorial current which pushes eastern section water in the western section.
- **Statement 2 is correct:** Warm water comes in contact with the Westerlies. They are moved into eastern part so In the temperate zone, westerlies make the eastern sections of oceans warmer than the western sections.

27. Exp. (b)

Extra Movement

- **Summer solstice:** The two moments during the year when the path of the Sun in the sky is farthest north in the Northern Hemisphere (June 20 or 21) or farthest south in the Southern Hemisphere (December 21 or 22).
- At the summer solstice, the Sun travels the longest path through the sky, and that day therefore has the most daylight.

28. Exp. (d)

Clouds

- **Statement 1 is incorrect**: High clouds are often thin and do not reflect very much. They let lots of the Sun's warmth in. They radiate less energy into space than the lower, warmer clouds. Therefore, high clouds work to "trap" more energy than the low clouds.
- **Statement 2 is incorrect:** Low clouds are often quite thick and reflect lots of sunlight back to space. Low clouds are excellent reflectors. But, they don't stop the longwave energy from escaping to space. Therefore, low clouds help to cool the Earth.

BIOGEOGRAPHY

1. Exp. (c)

- **Statement 1 is correct:** Marsupials are not naturally found in India. Marsupials are a group of mammals that give birth to relatively undeveloped young, which then continue to develop and nurse in a pouch on their mother's belly. They are most commonly associated with Australia and nearby islands, where they have diversified into a wide range of species.
- **Statement 2 is incorrect:** It is not accurate to say that Marsupials can only thrive in montane grasslands with no predators. Marsupials are a diverse group of mammals that occupy a range of habitats, including forests, woodlands, shrublands, and even deserts.Australia, which is home to the majority of marsupial species, has various ecosystems where marsupials thrive.
- For example, kangaroos and wallabies are well adapted to open grasslands and savannas, where they can graze on vegetation. However, other marsupials like koalas inhabit forested areas and feed on eucalyptus leaves. Some species, such as the sugar glider, are arboreal and live in trees.

2. Exp. (b)

- **Statement 1 is correct:** India has the largest arable land of any country at 1,656,780 km square (50.4% of total land) compared with 1,084,461 km square (11.3% of total land) of China.
  - Arable land is land ploughed or tilled regularly. India has the most arable land in the world followed by the United States, Russia, China and Brazil.
  - India and the United States account for roughly 22% of the world's arable land. India has the largest Arable land of any Country.
- **Statement 2 is correct:** India has a higher percentage of its arable land under irrigation than China. The proportion of irrigated area is around 48% in India and 40-41% in China. However, China has invested more in irrigation infrastructure and technology to cope with water scarcity and increase agricultural productivity. India has a large dependence on rainfall and groundwater for irrigation, which are subject to variability and depletion.
- **Statement 3 is incorrect:** China has higher agricultural productivity than India. The average productivity per hectare in Indian agriculture is 2.4 tonnes for rice and 3 tonnes for wheat, while in China it is 6.7 tonnes for rice and 5 tonnes for wheat.

3. Exp. (d)

- The worst drought in decades is ravaging East Africa, destroying crops and driving the cost of food out of reach of many. In Somalia alone, 7 million people (out of a total population of 16 million) could be at risk of famine in the next two months if aid is not scaled up to meet skyrocketing needs.

4. Exp. (d)

Contour bunding

- It is done in order to improve the farming ability of the soil on hills and slopes of mountains.
- It creates stair-like areas which is developed for planting different plants, herbs, and crops.

5. Exp. (b)

Central Asian Steppe

- "The Great Steppe", is found in Eastern Europe and Central Asia, it is the world's largest steppe region.
- It is found in Kazakhstan, Turkmenistan, Uzbekistan, and Mongolia. The climate found here is harsh with dust storms.The rainfall is negligible and the temperatures range from – 4 to 50 degree Celsius.
- The mid-latitude (Central Asian) grassland was once home to pastoral nomads like Kirgiz, Kazakh, and Kalmuks.

6. Exp. (c)

Microirrigation

- Microirrigation refers to the slow application of water on localized volume of soil by surface drip, subsurface drip, bubbler, and micro-sprinkler systems.
- Water applies in such irrigation wets a part of the soil so it is also called localized irrigation.
- This irrigation technique checks waterlogging and thus reduces soil salinity.Fertilizer and nutrient loss is also checked effectively besides checking weed growth.
- Slow and steady irrigation helps in replenishing groundwater table hence building up deficient underground water.

7. Exp. (b)

Salinization

- Soil salinity makes the soil impermeable due to which more and more water is accumulated on the surface causing increase in salinity to a greater extent.
- It can be reduced by adding gypsum to the soil.

8. Exp. (a)

- Tea requires a temperature ranging from 21°C to 29°C. Tea grows well in the regions which receive rainfall in between 150-200 cm. The soil should be well-drained. However, stagnant water damages the tea crops.
- Coffee plantations require a temperature ranging between 25°C to 30°C. Rainfall should range between 150-200 cm. Coffee plants should be protected from direct sunlight. Hence many trees are planted in between the coffee crop to provide shade to the plant.
- **Tea is also propagated from seeds and leaf cuttings, in addition to stem cuttings.**

9. Exp. (c)

Rare earth metals

- A rare-earth element (REE) or rare-earth metal (REM) is one of a set of seventeen chemical elements. China is the largest producer of rare earth metal in the world with 90%of its production while it holds around 97% of its reserve.
- India is the third-largest producer of rare earth metal.
- Rare earth metals and alloys that contain them are used in many devices that people use every day such as computer memory, DVDs, rechargeable batteries, cell phones, catalytic converters, magnets, fluorescent lighting, and other electronic equipment.

10. Exp. (c)

Savannah grassland

- Savannas are defined based on vegetation structure, the central concept being a discontinuous tree cover in a continuous grass understorey.
- Fire, grazing herbivore and seasonal rainfall are behind the scarce forest development in the region.

11. Exp. (b)

- **Statement 1 is incorrect:** Moringa Oleifera is a medium-sized evergreen tree that is native to Africa and Asia. Also known as The Moringa Tree, the Drumstick Tree or The Miracle Tree. This is non-leguminous tree.
- **Statement 2 is incorrect:** Tamarind, (Tamarindus indica), evergreen tree of the pea family (Fabaceae), native to **tropical Africa**.

12. Exp. (b)

- Permaculture farming, which spread across the West as part of the hippie movement, is fast gaining ground in India among subsistence farmers and those who want to grow their food.
- It was first prop-agated in the 1970s by Australian biologist Bill Mollison.
- It gained acceptance in India after several enthusiasts were influenced by Mollison during his visit to the country in 1987.
- According to Mollison, permaculture is the "conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability, and resilience of natural ecosystems.It is the harmonious integration of landscape and people providing their food, energy, shelter, and other material and non-material needs in a sustainable way."

- Since the principles of permaculture discou rage monoculture, it opens up the opportunity for growing a wide variety of grains, fruits and vegetables, and widens one's food basket.
- Permaculturists claim that the benefits go beyond achieving self-sufficiency in food.
- Permaculture also helps curtail expenses on labour. "Perennial plants are integral to a permaculture farm.

13. Exp. (b)

Palm oil

- **Statement 1 is incorrect:** More than 80 percent of palm oil is grown in Southeast Asia, with Indonesia and Malaysia leading the world in production of the commodity. Oil palms were introduced to Malaysia and Indonesia in the mid-20th century from Africa, and large scale production followed. The growth has been rapid and widespread, and the natural forest and all that live in it face a dire future.
- **Statement 2 is correct:** Palm oil and its derivatives are present in at least 70% of cosmetic products, according to Croda, a global specialty ingredients supplier to the beauty and personal care industry. This goes to show that palm-derived ingredients are preferred by the manufacturers for their functional benefits.
- **Statement 3 is correct:** Generally, RBD palm oil is used to produce biodiesel due to the low FFA content (0.1-0.5%) and thus minimize the impact of saponification reaction. Darnoko and Cheryan (2000) studied the transesterification of RBD palm oil with methanol catalyzed by KOH.

14. Exp. (a)

Water effecting crop

- Sugarcane is the least water efficient crop. Among the given options, its water requirement is 1800-2200 mm/season which is highest.
- Sunflower's water requirement was estimated at 672.4 mm/season.
- Pearl millet is a drought tolerant crop. Water requirement: 350 mm/season.
- Red gram uses about 250-400 mm/season of water.

15. Exp. (d)

Tropical rainforest

- The tropical rainforest is a hot, moist biome where it rains all year long. It is known for its dense canopies of vegetation that form three different layers. The top layer or canopy contains giant trees that grow to heights of 75 m (about 250 ft) or more. This layer of vegetation prevents much of the sunlight from reaching the ground. Thick, woody vines are also found in the canopy. They climb trees in the canopy to reach for sunlight. The middle layer, or understory, is made up of vines, smaller trees, ferns, and palms. A large number of plants from this level are used as common houseplants. Because of the small amount of sunlight and rainfall these plants receive, they adapt easily to home environments. The bottom layer or floor of the rainforest is covered with wet leaves and leaf litter. This material decomposes rapidly in the wet, warm conditions (like a compost pile) sending nutrients back into the soil. Few plants are found on the floor of the forest due to the lack of sunlight.

INDIAN GEOGRAPHY

1. Exp. (d)

- **Statement 1 is incorrect:** The Amarkantak region is a unique natural heritage area and is the meeting point of the **Vindhya** and the **Satpura Ranges**.
- **Statement 2 is incorrect:** The Biligirirangana Hills is a hill range situated in **south-western Karnataka,** at its border with Tamil Nadu (Erode District) in South India.The **Satpura Range** is a range of hills in central India which rises in eastern Gujarat running east through the border of Maharashtra and Madhya Pradesh and **ends in Chhattisgarh**.
- **Statement 3 is incorrect:** Seshachalam Hills are part of the **Eastern Ghats** in southern Andhra Pradesh. These ranges are predominantly present in Tirupati district of the **Rayalaseema** region in Andhra Pradesh, India.

2. Exp. (b)

- **Statement 1 is correct: The Jhelum rises** from a deep spring at Vernag, in western Jammu and Kashmir union territory. The river meanders north-westward from the northern slope of the Pir Panjal Range through the Vale of Kashmir to **Wular Lake at Srinagar**, which controls its flow.
- **Statement 2 is incorrect:** Kolleru Lake is one of the largest freshwater lakes in India located in state

of Andhra Pradesh and forms the largest shallow freshwater. It is **located between Krishna and Godavari deltas.** The lake is fed directly by water from the seasonal **Budameru and Tammileru streams.**

- **Statement 3 is correct:** Kanwar Lake is located **22 km north-west of Begusarai town.** It is a residual oxbow lake, **formed due to meandering of Gandak River,** a tributary of Ganga, in the geological past.

3. Exp. (c)

- In 2021, Switzerland exported $86.7B in Gold, making it the 1st largest exporter of Gold in the world. At the same year, Gold was the 1st most exported product in Switzerland.
- The USA has held its first position in gold reserves for several years. Gold makes up 79% of the USA's foreign reserve (the only countries above this are Venezuela with 82.4% and Portugal with 80.1%). It has nearly the stock of the following top three countries combined. USA is followed by the Germany and Italy.

4. Exp. (d)

Water reservoirs of National Importance

- **Aliyar Dam:** Aliyar Dam is a charming location surrounded by Annamali Hills with wonderful natural views. It is located between Pollachi and Valparai.At a distance of 64 Kms from Coimbatore, 24 Kms from Pollachi & 545 Kms from Chennai. Built across Aliyar River between 1959 and 1969, the primary purpose of the dam is to support irrigation for Pollachi and nearby places for Agriculture purpose. The height of the dam is 81 meters. There is a well-maintained park built at bottom of the Dam. The view of the Anamalai range around the reservoir is a feast for the eyes and the view of the coconut groves from top of the dam is amazing. Boating is available here.
- **Isapur Dam:** Isapur Dam is one of the biggest dam in the state of Maharashtra, build over the Painganga River that divides Maharashtra into two regions namely; Marathwada and Vidarbha regions. It is an earth fill dam, with a height of 57 m, and the length is 4,120.1 m. The motive behind the construction of the Dam was mainly irrigation. Lush with water, Isapur Dam is a prominent tourist attraction cradled in the lap of mother nature. Blessed with pristine scenery, it is an incredible place for the keen bird watchers to stay around and get mesmerized by the sweet calls of the colorful birds around, especially during winters. While the immense greenery around the dam makes it a perfect background for the picnic or sightseeing.
- **Kangsabati Reservoir Project:** Kangsabati Reservoir Project was started in the year 1956-57. Till date an irrigation potential of 3,48,477 ha. has been created in the districts of Bankura, Midnapore and Hooghly through this Project. With bank assistance and under Accelerated Irrigation Benefit Programme, the Government has undertaken large extension and improvement programme of the main canals. The project though originally planned for Kharif and limited Rabi, at present the irrigation water is provided for Boro cultivation also to an area of 27,944 ha.

5. Exp. (a)

	Origin Glacier	*Rivers*
1.	Bandarpunch	Yamuna
2.	Bara Shigri	Chenab
3.	Milam	Gori Ganga
4.	Siachen	Nubra
5.	Zemu	Teesta

6. Exp. (a)

Famous places & rivers

- Pandharpur is a well known pilgrimage town on the banks of Chandrabhaga River in Solpur district, Maharashtra, India. Tiruchirapalli is located along the Kaveri River in Tamil Nadu, India. Hampi, also referred to as the Group of Monuments at Hampi, is a UNESCO World Heritage Site situated on the banks of the Tungabhadra River in the eastern part of central Karnataka near the state border with Andhra Pradesh. Thus only 1 and 2 are correct.

7. Exp. (a)

Kharif Crop in India

- Area under rice cultivation is the highest.
- Area under the cultivation of jowar is not more than that of oilseeds.
- Area of cotton cultivation is more than that of sugarcane.
- Area under sugarcane cultivation has not decreased. The normal area (average of latest five years) under sugarcane cultivation in the country is 48.84 lakh hectares. During 2015-16 area under sugarcane was estimated above the normal area coverage at 49.27 lakh hectares. The area under sugarcane declined to 44.36 lakh hectares during 2016-17 due to lesser area coverage in Maharashtra and then increased to 47.32 lakh hectares during 2017-18.

8. Exp. (a)

Minor minerals

- Sand is a minor mineral, as defined under section 3(e) of the Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act).
- Section 15 of the MMDR Act empowers state governments to make rules for regulating the grant of mineral concessions in respect of minor minerals and for purposes connected therewith. The regulation of grant of mineral concessions for minor minerals is, therefore, within the

legislative and administrative domain of the state governments.

- Further, section 23C of the MMDR Act, 1957 empowers state governments to frame rules to prevent illegal mining, transportation and storage of minerals and for purposes connected therewith. Control of illegal mining is, therefore, under the legislative and administrative jurisdiction of state governments.

9. Exp. (a)

Barren Island

- Barren Island is possession of India in the Andaman Sea about 135 km NE of Port Blair in the Andaman Islands. It hosts India's only active volcano.
- It erupted last time in 2017, not 1991.

10. Exp. (a)

Kodaikanal Lake

- Kodaikanal Lake, also known as Kodai Lake is a manmade lake located in the Kodaikanal city in Dindigul district in Tamil Nadu, India.

11. Exp. (d)

Mines in India

- As per the Mines and Minerals (Development and Regulation) Amendment Act, 2015 ,non-coal mines have to be auctioned by the respective state governments.
- There are 3 gold mines that are in operational condition in India. They are Hutti and Uti in Karnataka and the Hirabuddini mines in Jharkhand ,. East Singhbhum, Jharkhand has one operational gold mine located in Kendrugocha, which is of medium quality.
- Bhilwara Iron Ore Mine in Rajasthan is an operational mine.

12. Exp. (b)

Teesta

- The Teesta River originates from the Pahunri (or Teesta Kangse) glacier and flows southward through the Sikkim Himalaya while the Brahmaputra River originates on the Angsi Glacier located on the northern side of the Himalayas in Burang County of Tibet.
- Rangeet river is main tributary of Teesta river.
- River Teesta does not flow directly into Bay of Bengal but meets Brahmaputra river which later along with the Ganga merges into Bay of Bengal.

13. Exp. (b)

Physiography of India

- The Himalayas in India are spread over Himachal Pradesh, Uttarakhand, Sikkim, Assam, West Bengal, Arunachal Pradesh. Some extensions of Shiwaliks are also present in Punjab and Haryana.
- Western Ghats are spread over six states, namely - Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu.
- Pulicat lake is located on the border of Andhra Pradesh and Tamil Nadu.

14. Exp. (b)

National Chambal Sanctuary

- National Chambal Sanctuary, also called the National Chambal Gharial Wildlife Sanctuary, is a tri-state protected area in northern India for the protection of the Critically Endangered gharial, the red-crowned roof turtle, and the Endangered Ganges river dolphin.
- It is located on the Chambal River near the tripoint of Rajasthan, Madhya Pradesh, and Uttar Pradesh.

15. Exp. (b)

India's mapping

- The shortest route having minimum states from Kohima (Nagaland) to Kottayam (Kerala) passes through the following states: Nagaland - Assam - West Bengal - Odisha - Andhra Pradesh - Tamil Nadu or Karnataka - Kerala

16. Exp. (a)

Great Nicobar

- Great Nicobar is nearest from Sumatra and is located at a distance of 180 Km from it.

17. Exp. (a)

Sathyamangalam Tiger Reserve

- Sathyamangalam forest range is a significant wildlife corridor in the Nilgiri Biosphere Reserve. It is located in the Erode district of Tamil Nadu.
- The reserve also adjoins four other protected areas Billigiriranga Swamy Temple Wildlife Sanctuary, Sigur Plateau, Mudumalai National Park, and Bandipur National Park.

18. Exp. (c)

Chandipur beach

- Chandipur beach is unique in the whole world where the seawater retreats inside the sea from 1km to 5 Km every day and it again comes back to the shore slowly during high tide.
- This happens twice every day. It is also known as Hide and Seek Beach.

19. Exp. (d)

Shale gas resources

- There are 11 exploratory wells that were recently provided to ONGC for drilling for shale oil and shale gas. They are Cambay basin at Mehsana,

Ahmedabad and Bharuch districts of Gujarat, one well in Cauvery basin at Nagapattinam in Tamil Nadu and five wells in Krishna-Godavari Basin at East and West Godavari districts of Andhra Pradesh.

20. Exp. (b)

Linking of rivers

- Successive Andhra Pradesh governments have been trying to harness at least 10 percent of this water and divert some of it into the Krishna, whose delta faces an acute shortage of water for irrigation.

21. Exp. (d)

Artificial inland port

- The government of Rajasthan had planned to develop Inland Shipping Port at Jalore which would be connected to the Arabian Sea by developing a channel along the Kutch Creek.

22. Exp. (d)

Tributaries at Brahmaputra

- Left Bank: Dibang River, Lohit River, Dhansiri River, Kolong River
- Right Bank: Kameng River, Manas River, Beki River, Raidak River, Jaldhaka River, Teesta River, Subansiri River

23. Exp. (d)

Easternmost and Westernmost States of India

- The mainland of India extends from Kashmir in the north to Kanniyakumari in the south and Arunachal Pradesh in the east to Gujarat in the west.
- The tiny town of Kibithu in Arunachal Pradesh is the easternmost point of India. The Lohit River enters India from Kibithu.
- The westernmost point of India is the small inhabited village of Ghuar Moti, located in the Kutch District of Gujarat.

24. Exp. (d)

Tributaries of Godavari

- The major tributaries of the river can be classified as the left bank tributaries which include the Purna, Pranhita, Indravati and Sabari River covering nearly 57% of the total catchment area of the basin and the right bank tributaries Pravara, Manjira, Manair together contributing 11% of the basin.
- Pranhita is the largest tributary covering about 34% of its drainage basin.

25. Exp. (a)

Living Root Bridges

- Deep in the dense tropical forest of Meghalaya, and shrouded in cloud and rain for much of the year, are some astonishing man-made natural wonders. Known as living root bridges, inventive members of the Khasi tribe have trained them to grow from the roots of ancient rubber trees, native to the northeast region.
- The root bridges provide a stable alternative to wooden bridges, which decay and get destroyed during the lengthy monsoon seasons.
- Meghalaya's most famous root bridge, the "double-decker" root bridge, can be found in the vicinity of one of the wettest places on earth - Cherrapunji (also known as Sohra).

26. Exp. (c)

Tropical Wet Evergreen Forests in India

- The tropical wet evergreen forest in India are usually found in areas receiving more than 200 cm of rainfall and having a temperature of 15-30 degrees Celsius.
- Evergreen forests are found on the eastern and western slopes of the Western Ghats in such states like Tamil Nadu, Karnataka, Kerala, and Maharashtra.
- And also found in Assam, Arunachal Pradesh, Meghalaya, Nagaland, Tripura, West Bengal, and Andaman and Nicobar Islands.

27. Exp. (a)

Species of trees in tropical moist deciduous forest

- The moist deciduous forests are more found in the regions which record annual average rainfall between 100-200 cm.
- These forests are found in the northeastern states along the foothills of the Himalayas, eastern slopes of the Western Ghats and Odisha.
- Teak, sal, shisham, hurra, mahua, amla, semul, kusum, and sandalwood etc. are the main species of these forests.

28. Exp. (a)

Himalayas naturally growing plants

- Trees largely predominate the temperate belt of the Great Himalayan National Park. The conifer species are widely distributed at various altitudes (e.g., blue pine, cedar, spruce, and fir) in the successive low to high altitudinal zones.
- Each of the upper coniferous belts has its characteristic oak which provides a corns for birds and rodents. The white-oak is associated with Pinus roxburghii and blue pine; green-oak with fir and spruce.
- Rhododendron arboreum dominates between 1500-3000 m with a tendency of preference for the lower elevation on the north side. Four species of Maple occur with a wide range of altitudes from 1500-3500 m. Aesculus, alder, poplar, birch, and willows are common near the streams.

29. Exp. (b)

Barak

- Barak does not flow in Arunachal Pradesh.
- The Barak is a 900 km (560 miles) long river flowing through the states of Manipur, Nagaland, Mizoram, and Assam in India and into the Bay of Bengal via Bangladesh.

30. Exp. (a)

Wetlands and Rivers

- Harike wetland is located downstream of the confluence of the Beas and Sutlej rivers.
- Keoladeo Ghana National Park is a man-made and man-managed wetland and one of the national parks of India.
- The bund was created at the confluence of two rivers, the **Gambhir and Banganga not beas and Chambal**.
- Kolleru is one of the largest freshwater lakes in India located in state of Andhra Pradesh and forms the largest shallow freshwater lake in Asia.
- Kolleru is located between Krishna and Godavari deltas.

31. Exp. (c)

	Hills	*Region*
1.	Cardamom Hills	Malabar Coast
2.	Kaimur Hills	Central India
3.	Mahadeo Hills	Central India
4.	Mikir Hills	North-East India

32. Exp. (d)

National highway & cities

- **NH 4:** This road running from the capital city of Port Blair to Diglipur connecting all major towns of Ferrargunj, Baratang, Kadamtala, Rangat, Billy Ground, Nimbudera, Mayabunder and Diglipur.
- **NH 6:** The highway passes through the Indian states of Meghalaya, Assam, and Mizoram.
- **NH 15:** This highway starts from Baihata in Assam and terminates at Wakro in Arunachal Pradesh.

33. Exp. (a)

Ten Degree Channel

- The Ten Degree Channel is a channel that separates the Andaman Islands and Nicobar Islands from each other in the Bay of Bengal.
- This channel is 150 kilometers (93 mi) wide from north to south, and approximately 10 kilometers (2 mi) long from east to west. It is so named as it lies on the 10-degree line of latitude, north of the equator.

34. Exp. (b)

Changpa Community of Ladakh

- The Changpa or Champa are a semi-nomadic Tibetan people found mainly in the Changtang in Ladakh and in Jammu and Kashmir.
- The Changpas rear the highly pedigreed and prized Changra goats (Capra Hircus) that yield the rare Pashmina fiber (Cashmere wool). The Cashmere goats (Changra goats) are not raised for their meat but for their fiber (pashm). The pashmina fiber (Pashm in Persian) is the finest fiber of all goat hair.
- They are kept in the category of Scheduled Tribes.

35. Exp. (d)

	National Park	*River flowing through the Park*
1.	Corbett National Park	Ramganga
2.	Kaziranga National Park	Four rivers: Brahmaputra, Diphlu, Mora Diphlu and Mora Dhansiri
3.	Silent Valley National Park	Kunthi or Kunthi Puzha

36. Exp. (a)

Narmada

- Narmada and Tapi flow through rift valley due to which it flows along the direction of the valley not in the south-east direction which along the slope of the peninsular block.
- It flows between the Vindhyas and Satpura but it is not the reason behind its westward flow.
- The slope of the land is towards east, not the west.

37. Exp. (a)

Biosphere reserves

- Nokrek Biosphere Reserve: Garo Hills
- Logtak (Loktak) Lake: Manipur
- Namdapha National Park: Arunachal Pradesh

38. Exp. (d)

Industries

- If the total water use by the industry is accounted, thermal power plants are used maximum water which accounts for 88% of the total industrial water use.
- They are followed by engineering (05%) pulp & paper (26%) and textiles (07%) industries.

39. Exp. (a)

Characteristics of Indian coal

- Indian coals contain less trace elements but at the same time, a greater fraction of inorganic impurities compared to coals from other countries.
- Indian coals have a high ash content and a high ash fusion temperature, poor washability characteristics, generally low alkali content, and from a slag viscosity perspective, a favorable silica-alumina ratio. Indian coal also has low Sulphur content.

40. Exp. (c)

Laterite soils

- Nearly all laterites are rusty-red because of iron oxides. They develop by intensive and long-lasting weathering of the underlying parent rock.
- **Laterites are soil types rich in iron and aluminum but are deficient in nitrogen and potash.** They are formed in hot and wet tropical areas. Thick laterite layers are porous and slightly permeable, so the layers can function as aquifers in rural areas.
- As these soil are found in areas having high rainfall, these are found in **western ghats in Karnataka, Maharashtra, in north-east India in Meghalaya Plateau and in some parts of Odisha**.
- When manured and irrigated, some laterites are suitable for growing plantation crops like tea, coffee, rubber, cinchona, coconut, areca nut, etc.

41. Exp. (b)

Minerals in India

- Gondwana beds are main source of coal, iron ore, Manganese, limestone e.t.c but natural gas is not found there.
- Mica occurs in abundance in Kodarma and this region is one of the highest producers of Mica in India.
- Dharwad region is in Karnataka. The minerals found in the Dharwad region are Bauxite, Kaolin and Red ochre. Petroleum is not found in this region.

42. Exp. (c)

Kharif crops

- Kharif crops, which are also known as monsoon crops, are the crops which are grown during the monsoon or rainy season (June to October). Their seeds are sown at the beginning of the monsoon season and the crops are harvested at the end of the monsoon season.
- The main Kharif crops grown in India include paddy, maize, jowar, bajra, cotton, sugarcane, groundnut, pulses, etc.

43. Exp. (a)

Indias Mapping

- Limboo (Limbu): Sikkim
- Karbi: Meghalaya
- Dongaria Kondh: Odisha
- Bonda: Odisha

44. Exp. (a)

Arunachal Pradesh

- Arunachal Pradesh is located on the same latitude which passes through northern Rajasthan.
- It has over 80% of its area under forest cover according to forest Survey Of India's State of Forest Report, 201
- Over 12% of the forest cover constitutes Protected Area Network in this State.

45. Exp. (a)

Crops of India

- Cowpea may be used green or as dry fodder. It also is used as a green manure crop, a nitrogen-fixing crop, or for erosion control.
- Green Gram has high nutritional value and is used as food, fodder, and manure.
- Edible parts of pigeon pea are the seeds, seedpods, leaves, and young shoots. Pigeon pea is as well known for its medicinal uses. Pigeon pea has numerous uses in animal feeding. The leaves and pods are valuable and palatable protein-rich fodder.

46. Exp. (d)

Crops of India

- All are rained crops in India.
- Sesamum and Pearl millet are prominent dryland crops while Groundnut is cultivated in areas of medium rainfall such as Gujarat, Andhra Pradesh, Rajasthan e.t.c

47. Exp. (d)

Properties of Himalayan Mountain Ranges

- The most characteristic features of the Himalayas are their soaring heights, steep-sided jagged peaks, valley and alpine glaciers often of stupendous size, topography deeply cut by erosion, seemingly unfathomable river gorges, complex geologic structure, and series of elevational belts (or zones) that display different ecological associations of flora, fauna, and climate.
- Viewed from the south, the Himalayas appear as a gigantic crescent with the main axis rising above the snow line, where snowfields, alpine glaciers, and avalanches all feed lower-valley glaciers that in turn constitute the sources of most of the Himalayan rivers. The greater part of the Himalayas, however, lies below the snow line.
- The mountain-building process that created the range is still active. As the bedrock is lifted, considerable stream erosion and gigantic landslides occur.
- Ranges of Himalayas are parallel to each other and have unique topography. Rivers have U-turn topography.

48. Exp. (c)

The Indian Monsoon

- The Indian monsoon has two branches i.e. Bay of Bengal Branch and Arabian Sea branch. Both

Branches proceed northward from southern parts of India. When monsoon is established both branches withdraw from northern parts towards south. Hence, duration is maximum in southern India.

- Bay of Bengal branch of monsoon enters through eastern coast and proceeds towards west. Arabian sea branch strikes windward side of western ghat and marches parallel to Aravallis thus area around Aravallis does not get much rainfall from it.
- But areas of eastern India get sufficient rainfall from Bay of Bengal branch. Thus, rainfall decreases from east towards west.

49. Exp. (b)

Climatic conditions and vegetation of Arunachal Pradesh

- The climate in Arunachal Pradesh ranges from sub-tropical to temperate depending upon the altitude. The regions in the lower belts of the state experience hot and humid climates, with maximum temperature in the foothills reaching up to 40 °C (during the summer).
- The average temperature in this region in winter ranges from 15° to 21 °C while that during the monsoon season remains between 22° and 30 °C.
- Owing to its location amid the foothills of the Himalayas, Arunachal Pradesh is one of the richest states in the region in terms of biodiversity.
- The state's climatic conditions facilitate the growth of a vast variety of plants and trees in the territory, thereby providing a rich store of fauna to the region.
- Orchids, fern, bamboo, cane, rhododendrons, oak, hedychiums, and various medicinal plants form a diverse range of the state's green cover.

50. Exp. (a)

Bhitarkanika Mangrove

- Bhitarkanika Mangroves is a mangrove wetland in Odisha, India, covering an area of 650 km in the Brahmani and Baitarani river deltas.
- It is also a wildlife sanctuary and a national park.
- The national park and wildlife sanctuary is inundated by the rivers Brahmani, Baitarani, Dhamra, Pathsala.
- Baitarini originates in Odisha while the Brahmani is formed by the confluence of the rivers South Koel and Sankh. South Koelhas origin in Jharkhand.

51. Exp. (b)

Demographic dividend

- The demographic dividend is said to be occurring when the ratio of the working-age population is high and the dependency ratio in terms of the proportion of children and elderly people low.
- As India has a high working group of age between 16-64 years of age which is called working group, India is said to possess high demographic dividend.

52. Exp. (b)

The Himalayan Range species diversity

- The flora and fauna of the Himalayas vary with climate, rainfall, altitude, and soils. The climate ranges from tropical at the base of the mountains to permanent ice and snow at the highest elevations.
- The amount of yearly rainfall increases from west to east along the southern front of the range. This diversity of altitude, rainfall and soil conditions combined with the very high snow line supports a variety of distinct plant and animal communities.
- The extremes of high altitude (low atmospheric pressure) combined with extreme cold favour extremophile organisms.

53. Exp. (c)

Lower Gangetic plain

- Lower Ganga plain lies in the eastern part of India comprises of most part of West Bengal and Bangladesh which is characterized by high rainfall and humid climatic conditions.
- This fertile geographic region is shared by both Bangladesh and India (mainly West Bengal). China also has a dominating place in jute cultivation.
- Lower Gangetic plain has a huge population that aids the cultivation of labor-intensive crops such as Jute and paddy.

54. Exp. (b)

Syntaxial bending

- Himalayas has sytaxial bend due to which it provides a slope near Garo gap which leads to diversion of major rivers such as Brhamputra.
- There are two syntaxial bends in Himalayas which causes this type of topography. One is at Namcha Barwa and other is at Nanga Parbat.
- Due to these bends the geological structure of Himalayas becomes northward to southward.

55. Exp. (b)

Gujarat

- The northern part of Gujarat which borders with Rajasthan is semi-arid and arid.
- The central part is covered with Black soil due to which cotton is produced.
- Cash crops such as cotton are predominant in these regions supported by high demands from the cotton industry.

56. Exp. (d)

Soil conservation practices

- Crop rotation is the practice of growing a series of dissimilar or different types of crops in the same area in sequenced seasons. It helps in reducing soil erosion and increases soil fertility and crop yield.

- Sand fences can be used in windy regions adjacent to sandy soils. They help in reducing the wind speeds over the soil and also trap the sand blowing from adjoining places. Dams are constructed across the river channels to prevent soil erosion in downstream areas.
- Terracing is a soil conservation practice applied to prevent rainfall-runoff on sloping land from accumulating and causing serious erosion.
- Windbreaks can reduce soil erosion, increase crop yields and protect livestock from heat and cold. They reduce the speed of wind due to which it can not blow away nutrients.

57. Exp. (c)

The climatic condition required for growth of pepper

- The crop tolerates temperatures between 10° and 40°C. The ideal temperature is 23 -32°C with an average of 28°C.
- Optimum soil temperature for root growth is 26-28°C.
- A well distributed annual rainfall of 125-200 cm is considered ideal for black pepper.

58. Exp. (c)

Tropical Deciduous Forests

- These are the most widespread forests in India. They are also called the monsoon forests.
- They spread over regions that receive rainfall between 70-200 cm.
- On the basis of the availability of water, these forests are further divided into moist and dry deciduous.

59. Exp. (a)

Limitations of India in mitigating global warming

- Appropriate alternate technologies are not sufficiently available in developing and underdeveloped countries to mitigate climate change-related issues. As India is developing country is partially or fully dependent upon developed countries on technology.
- For developing countries, poverty reduction and development are a major concerns. Hence, there is paucity of funds for research and development of alternate technology as compared to developed countries.
- Setting up of industries is regulated in India hence, it is not possible to set up polluting industries.

60. Exp. (d)

Rivers through Himachal Pradesh

- Beas flows through Mandi, Hamirpur district of Himachal Pradesh.
- Chenab flows through Keylang, Manali etc districts.
- Ravi flows through Chamba district of Himachal Pradesh.
- Satluj flows through Kalpa, Bilaspur etc districts of Himachal Pradesh.
- Yamuna makes boundary between Himachal Pradesh & Uttarakhand. It flows through Nahan district and enters Himachal Pradesh in Sirmur district.

61. Exp. (d)

Luni river

- Luni river has an Inland drainage system.
- It originates in the Pushkar valley of the Aravalli Range, near Ajmer, passes through the southeastern portion of the Thar Desert, and ends in the marshy lands of Rann of Kutch in Gujarat, after traveling a distance of 495 km.

62. Exp. (b)

Kolleru Lake

- Kolleru Lake is the largest freshwater lake and is located in Andhra Pradesh.
- Kolleru is located between Krishna and Godavari delta and covers an area of 308 km^2.
- The lake serves as a natural flood-balancing reservoir for these two rivers.

63. Exp. (d)

Role of Himalayan ranges

- Himalayan ranges block the cold and dry Siberian wind from entering Indian sub-continent. If there would not have been the Himalayas, India would have been a cold desert.
- Indo-Gangetic plains are made up of fine silt and clay which are brought by Himalayan rivers and their tributaries from the Himalayas. Northern Plain would have been devoid of fertile alluvium without them.
- Orographic rainfall which is caused due to striking of Monsoon winds with Himalayas would not have been possible. Hence, pattern of monsoon would be different.

64. Exp. (a)

Latitude

- Latitude is the angular distance of a point on the earth's surface, measured in degrees from the center of the earth.
- 28 degree N latitude passes through both Sikkim and Rajasthan.

65. Exp. (b)

Minerals in India

- Orissa boasts of 95 percent of the country's chromite deposit, 92 percent of nickel ore, 55 percent of bauxite and 33 percent of iron ore. Besides, the state has substantial quantity of other minerals and ores like coal, manganese, dolomite, graphite, and limestone.
- Only 15 % of India's copper is found in Jharkhand.
- Deposits of wolfram, the chief ore of tungsten, are found in Degana (near Rawat Hills) in Rajasthan and Chendpathar in the Bankura district of West Bengal.

66. Exp. (b)

Cotton production

- Black cotton soil is not found predominantly in Tamil Nadu. Cotton as a raw material is fulfilled from neighboring states such as Maharashtra and Gujarat.
- Traditionally, cotton yarn is weaved in Tamil Nadu due to which cheap and skilled labour is available. This has enabled the cotton industry to grow with rapid pace.

67. Exp. (c)

Red soil

- Red soil is mainly found in areas of high temperature and rainfall.
- Their color is mainly due to ferric oxides occurring as thin coatings on the soil particles while the iron oxide occurs as haematite or as hydrous ferric oxide, the color is red and when it occurs in the hydrate form as limonite the soil gets a yellow color.

68. Exp. (b)

Gondwans rocks

- Gondwana rocks contain nearly 98 percent of India's coal reserves. Gondwana coal is much younger than the Carboniferous coal and hence it's carbon content is low.
- They have rich deposits of iron ore, copper, uranium and antimony also. Sandstones, slates, and conglomerates are used as building materials.

69. Exp. (a)

Longitude

- Longitude is an angular distance, measured in degrees along the equator east or west of the Prime (or First) Meridian.
- Both Delhi and Bangaluru fall on same longitude.
- Delhi lies on 77°13'429"E while Bengaluru lies on 77°35'328"E. Both are located close to each other in terms of longitude.

70. Exp. (c)

Sugarcane cultivation

- **Statement 1 is correct :** The settlings are raised in the nursey and are ready for transplanting by 30-35 days. After 30-35 days old settlings are transplanted in the main field using the sugarcane settling transplanter.
- **Statement 3 is incorrect:** Large setts have better survival under bad weather but single budded setts also gives 70% germination if protected with chemical treatment.
- **Statement 4 is correct:** Planting material for vegetative propagation such as whole cane, setts having of single bud to six buds, settling prepared from tissue culture or single buds in nursery are being used.

71. Exp. (b)

Ocean mean temperature

- The 26 degree C isotherm is seen at depths varying from 50-100 metres. During January-March, the mean 26 degree C isotherm depth in the Southwestern Indian Ocean is 59 metres.
- Researchers at Pune's Indian Institute of Tropical Meteorology report that ocean mean temperature is more accurate in predicting Indian monsoon
- The information on whether the amount of monsoon rainfall will be more or less than the long-term mean will be available by beginning of April, two months before the south-west monsoon can set. This is because OMT is analysed by measuring the ocean thermal energy during the period January to March.

72. Exp. (b)

Black cotton Soils

- Black soils are derivatives of Deccan trap lava and are spread mostly across interior Gujarat, Maharashtra, Karnataka, and Madhya Pradesh on the Deccan lava plateau and the Malwa Plateau, where there is both moderate rainfall and underlying basaltic rock.
- The Deccan trap, which is the source of the black soils, is a basaltic province formed during the hot spot volcanism when the Indian plate was above the Reunion island about 66 million years ago.
- At that time, the less viscous Basaltic lava erupted through the fissures covering a vast area of about ten lakh sq km. Hence option (b) is correct.
- These soils are also known as the 'Regur Soil' or the 'Black Cotton Soil'.

73. Exp. (d)

River system

- Starting at the pinnacle of the world with glaciers, the Indus River supplies the flora and fauna of temperate forests, plateaus, and dry rural areas. In conjunction with the rivers Chenab, Jhelum, Sutlej, Ravi, Beas, and two tributaries from Afghanistan and Khyber Pakhtunkhwa, the Indus creates the Sapta Sindhu (Seven Rivers) delta of Pakistan.
- Chenab river moves into the lands of Punjab in the vicinity of Akhnur and is subsequently connected with the Jhelum. It creates the border between the Rechna and the Jech Doabs. The Chenab also meets the Ravi and the Sutlej in Pakistan.
- The Ravi River runs as a portion of the boundary between India and Pakistan for a particular distance prior to moving into Pakistan and meeting the Chenab River.
- The river moves into Pakistan in the vicinity of Sulemanki and is subsequently met by the Chenab.

74. Exp. (d)

Saline lakes

- Didwana is a town in the Nagaur district of Rajasthan. It also has a famous Didwana salt-water lake of Rajasthan.
- Kuchaman Lake is a continental saline lake located around Kuchaman city, Nagaur District, Rajasthan.

75. Exp. (b)

Rivers of Eastern Ghats

- Rivers originating on the Eastern Ghats include Baitarani River, Budhabalanga River, Rushikulya River, Vamsadhara River, Palar River, Nagavali River, and Champavathi River, etc.
- The Baitarani River originates from Guptaganga hills in Keonjhar District of Orissa, about 2 km from Gonasika village, at an elevation of 900 m at latitude 21° 31' N and longitude 85° 33' E.
- The Subernarekha River rises near Nagri village in the Ranchi District of Jharkhand at an elevation of 600 m. It flows for a length of 395 km before outfalling into the Bay of Bengal.

76. Exp. (d)

Climate Smart Agriculture

- **Statement 1 is correct:** Rajapakar is a Climate-Smart Village (CSV), a part of a project led by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Built on the principles of CSA, this program provides technological, organizational and systemic support to farmers in association with institutions to help them cope with climate change, in 36 sites across 20 countries.
- **Statement 2 is correct:** The governance and management of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) are based on lessons learned by CGIAR headquartered in France.
- **Statement 3 is correct:** ICRISAT is headquartered in Patancheru near Hyderabad, Telangana, India, with two regional hubs and six country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.

77. Exp. (d)

Tribal languages

- According to the 2011 census the Odisha tribal population is 95,90,765. Odisha's tribal language is divided into 3 main language families. They are Austro-Asiatic (Munda), Dravida and Indo-Aryan. Every tribe has its own language and language family. Each clan has a different dialect although speaking the same language. 21 languages and 74 dialects are in use. The languages are Austro-Asiatic:- Bhumij, Birhor, Rem (Bonda), Gatah (Didyai), Gutab (Gadaba), Sora(Saora), Gorum (Parenga), Khadia, Juang, Santali, Ho, Mundari, etc Dravid:- Gondi, Kui-Kondh, Kuvi-Kondh, Kisan, Koya, Olari, (Gadaba) Parja, Peng, Kudukh (Oraon) etc.Indo Aryan:- Bathudi, Bhuyan, Kurmali, Sounti, Sadri, Kandhan, Aghria, Desia, Jharia, Halbi, Bhatri, Matia, Bhunjia, etc

78. Exp. (b)

Mountain Peaks

- Namcha Barwa is in an isolated part of southeastern Tibet rarely visited by outsiders. It stands inside the Great Bend of the YarlungTsangpo River

as the river enters its notable gorge across the Himalaya, emerging as the Siang and becoming the Brahmaputra. On other hand the **Garhwal Himalayas** are mountain ranges located in the Indian state of Uttarakhand

- Kumaun Himalayas, west-central section of the Himalayas in northern India, extending 200 miles (320 km) from the Sutlej River east to the Kali River. The range, comprising part of the Siwalik Range in the south and part of the Great Himalayas in the north, lies largely within the state of Uttarakhand, northwest of Nepal. It rises to 25,646 feet (7,817 metres) at Nanda Devi, the range's highest peak.
- The Nokrek Biosphere Reserve is located in the northeast of India on the Tura Range, which forms part of the Meghalaya Plateau (average altitude: 600 metres).

79. Exp. (b)

Monazite

- Monazite is a mineral mainly containing rare earths and thorium-a prescribed substance to be handled by the Department of Atomic Energy (DAE). Accordingly, Indian Rare Earths Ltd. (IREL) wholly owned by the Govt. of India, under the administrative control of the Dept. of Atomic Energy (DAE) utilises monazite mainly for production of rare earth compounds, and thorium, as needed in the Department of Atomic Energy.
- In-situ monazite established by AMD so far are present in Odisha, Andhra Pradesh, Tamil Nadu, Kerala, West Bengal, and Jharkhand.

80. Exp.(b)

- Hokera Wetland- Jammu and Kashmir
- Renuka Wetland- Himachal Pradesh
- Rudrasagar Lake- Tripura
- Sasthamkotta Lake- Kerala

81. Exp. (d)

Tea production state

- **Option (d) is correct:** Assam, West Bengal, Tamil Nadu, and Kerala are the major tea producing states in India.
- Other states that produce tea include Himachal Pradesh, Uttarakhand, Meghalaya, Andhra Pradesh and Tripura.

82. Exp. (c)

Reservoirs

Only one pair is correct.

- Ghataprabha- Karnataka
- Gandhi Sagar- Madhya Pradesh
- Indira Sagar – Madhya Pradesh
- Maithon- Jharkhand

83. Exp. (b)

Solar Power in India

- **Statement 1 is incorrect:** India's Bhadla Solar Park in Rajasthan is the largest solar power park in the world.
- **Statement 2 is correct:** Kerala's Cochin International Airport Ltd (CIAL) is the first airport in the world that would be running fully on solar power.
- **Statement 3 is incorrect:** The 600 MW capacity floating solar project on Omkareshwar reservoir (in Madhya Pradesh) is not only India's but also the world's largest floating solar project so far.

WORLD REGIONAL GEOGRAPHY

1. Exp. (a)

- **The Congo Basin spans across six countries**—Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea and Gabon.

2. Exp. (d)

- **Statement 1 is incorrect:** The **Donbas or Donbass** is a historical, cultural, and economic region in **eastern Ukraine**. Parts of the Donbas are occupied by Russia as a result of the Russo-Ukrainian War
- **Statement 2 is incorrect: Kachin State** is the northernmost state of The state is witnessing conflict with the Kachin insurgents fighting against the Tatmadaw (Myanmar Armed Forces) since 1961, with only one major ceasefire being brokered between them, which lasted from 1994 to 2011, a total of 17 years.
- **Statement 3 is incorrect:** The **Tigray Region** is the northernmost regional state in Armed conflict in the region lasted from 3 November 2020 to 3 November 2022 between the Ethiopian federal government and Eritrea on one side, and the Tigray People's Liberation Front (TPLF) on the other.

3. Exp. (d)

- **Statement 1 is incorrect:** North Kivu and Ituri are provinces of Democratic Republic of the Congo.

- **Statement 2 is incorrect:** The Nagorno-Karabakh conflict is an ethnic and territorial conflict between Armenia and Azerbaijan over the disputed region of Nagorno-Karabakh, inhabited mostly by ethnic Armenians, and seven surrounding districts, inhabited mostly by Azerbaijanis until their expulsion during the 1990s during a period of Armenian occupation.
- **Statement 3 is incorrect:** Amid the ongoing invasion of Ukraine, Russia unilaterally declared its annexation of areas in and around four Ukrainian oblasts – Donetsk, Kherson, Luhansk, andZaporizhzhia.

4. Exp. (a)

- **Statements 3 and 6 are correct:** With an area of 600,000 km², it is the second-largest country in Europe after European Russia, twice the size of Italy or slightly smaller than the US state of Texas. Ukraine borders Belarus, Hungary, Moldova, Poland, Romania, Russia, and Slovakia.

5. Exp. (b)

- **Countries bordering Adriatic sea:** The Adriatic Sea is a part of the Mediterranean Sea positioned between the eastern coastline of Italy, and countries of the Balkan Peninsula, from Slovenia, south through Croatia. Montenegro, and to Albania. The southern boundary of the sea ends in the Strait of Otranto between Albania and Italy's Salento Peninsula. Immediately south of that strait the Ionian Sea begins.
- **Countries bordering Black sea:** The Black Sea lies between southeastern Europe and Asia Minor. Excluding its northern arm, the Sea of Azov, the Black Sea occupies about 168,500 square miles (436,400 square kilometers). It is connected to the Aegean Sea through the Bosporus, the Sea of Marmara, and the Dardanelles, and has been of critical importance to regional commerce throughout the ages. This major inland sea is bordered by six countries — Romania and Bulgaria to the west; Ukraine, Russia, and Georgia to the north and east; and Turkey to the south. Additionally, it is impacted by another 10 nations through the five major rivers that empty into the Black Sea, the largest of which is the Danube River.
- **Countries bordering Caspian sea:** The five countries Azerbaijan, Kazakhstan, Russia, Turkmenistan and Iran share their boundary with the Caspian Sea
- **Countries bordering Mediterranean Sea:** The countries surrounding the Mediterranean in clockwise order are Spain, France, Monaco, Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania, Greece, Turkey, Syria, Lebanon, Israel, Egypt, Libya, Tunisia, Algeria, and Morocco; Malta and Cyprus are island countries in the sea.
- **Countries bordering Red sea:** There are six countries (Saudi Arabia, Yemen, Egypt, Sudan, Eritrea, and Djibouti) bordering the Red Sea.

6. Exp. (c)

Region sometimes mentioned in news	Country
1. Catalonia	Spain
2. Crimea	Russia (annexed from Ukraine)
3. Mindanao	Philippines
4. Oromia	Ethopia

7. Exp. (a)

Seas of the world

- The Aral Sea has shrunk by about 75% of its original size mainly because of water diversion for agricultural usages in surrounding areas. From a depth of 68 meters in the 1960s, today it has less than 10 meters depth.
- In Lake Baikal, the water level has gone below the critical mark of 456m eleven times. Thus, while the Aral Sea has dried up immensely, Lake Baikal shows a fluctuating nature.

8. Exp. (b)

Towns & country

Towns sometimes mentioned in news	Country
1. Aleppo	Syria
2. Kirkuk	Iraq
3. Mosul	Iraq
4. Mazarisharif	Afghanistan

9. Exp. (d)

- According to the United Nations **Yemen faced** one of "the world's largest famine". 17 million people were dependent on external aid for food and

medicine, while the country is fighting a massive cholera outbreak and civil war.The breakdown of government services, lack of drinking water and a crumbling health sector, besides the miseries of civil war and aerial bombardment, are fast turning Yemen into a failed state, and a breeding ground for extremist groups such as al-Qaeda in the Arabian Peninsula.

- South Sudan declared a famine and more than half of the people in the world's youngest nation faced extreme hunger amid civil war. A report by the United Nations and South Sudan's government said more than six million people were at threat without aid, up about 40 % then.

10. Exp. (b)

The two-state solution

- The two-state solution to the Israeli–Palestinian conflict envisages an independent State of Palestine alongside the State of Israel, west of the Jordan River.
- The boundary between the two states is still subject to dispute and negotiation, with Palestinian and Arab leadership insisting on the "1967 borders", which is not accepted by Israel. The territory of the former Mandate Palestine (including Jerusalem) which did not form part of the Palestinian State would continue to be part of Israel.

11. Exp. (c)

Mediterranean Sea

- The Mediterranean Sea is a large body of water with Europe to the north, northern Africa to the south, and southwestern Asia to the east
- The countries surrounding the Mediterranean in clockwise order are Spain, France, Monaco, Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania, Greece, Turkey, Syria, Lebanon, Israel, Egypt, Libya, Tunisia, Algeria, and Morocco; Malta and Cyprus are island countries in the sea.

12. Exp. (b)

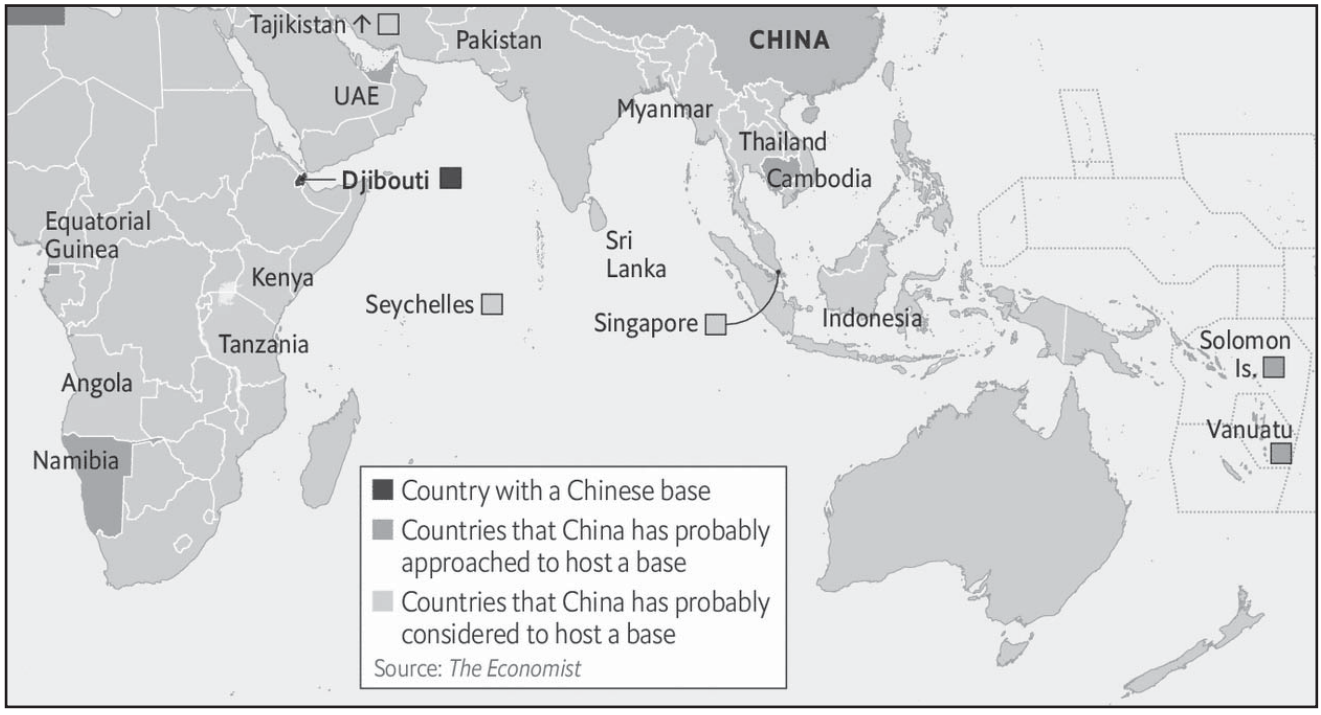
Golan Heights

- The Golan is a region in the Levant, spanning about 1,800 square kilometers (690 sq mi).
- The region defined as the Golan Heights differs between disciplines: as a geological and biogeographical region, the Golan Heights is a basaltic plateau bordered by the Yarmouk River in the south, the Sea of Galilee and Hula Valley in the west, the Anti-Lebanon with Mount Hermon in the north and Wadi Raqqad in the east.

13. Exp. (b)

Mediterranean Sea

- The Mediterranean Sea is a large body of water with Europe to the north, northern Africa to the south, and southwestern Asia to the east.
- The narrow Strait of Gibraltar to the west is the only outlet to the Atlantic Ocean. Its total area is 970,000 square miles, and its greatest depth is off the coast of Greece, where it is 16,800 feet deep.



14. Exp. (b)

Capital augmenting technology

- Capital augmenting technology increases the productivity of existing capital goods. In this case, replacement of wooden by steel increases the productivity of plough.
- While labor augmenting is technology that increases the skills and productivity of existing labor force.

15. Exp. (b)

Turkey

- Turkey is a transcontinental Eurasian country. Asian Turkey, which includes 97 percent of the country, is separated from European Turkey by the Bosphorus, the Sea of Marmara, and the Dardanelles.
- European Turkey comprises 3 percent of the country's territory.Z

16. Exp. (c)

World mapping

- Correct Sequence from south to north is Jakarta-Singapore-Bankok-Hanoi.

17. Exp. (b)

Geographical Region	Feature
(a) Abyssinian Plateau :	Ethiopia
(b) Atlas Mountains:	North - Western Africa
(c) Guiana Highlands:	North - Western South America
(d) Okavango Basin:	South-Western Africa

18. Exp. (c)

By-products of the sugar industry

- Bagasse is often used as a primary fuel source for sugar mills. When burned in quantity, it produces sufficient heat energy to supply all the needs of a typical sugar mill, with energy to spare.
- Molasses is used to produce organic fertilizer, not chemical fertilizer.
- Because of its high sucrose content, a substantial portion of the molasses is used worldwide for producing ethyl alcohol through fermentation. It has been estimated that around 80 percent of the world's molasses is used for alcohol production.

19. Exp. (c)

Mixed farming

- Mixed farming is a type of farming which involves both the growing of crops and the raising of livestock.
- This type of farming is practiced across Asia and in countries such as India, Malaysia, Indonesia, Afghanistan, South Africa, China, and Russia.

20. Exp. (b)

kra isthmus

- The Kra Canal can open vast opportunities for maritime trade in Asian nations. The prospective construction of the canal in the Isthmus of Kra in southern Thailand will herald a new chapter in Asia, especially Southeast Asian economic relations, very much like what the Suez Canal did for Europe and Asia.
- The canal will shorten sea routes between East Asia and South Asia, increase trade among littoral states, and boost the fishing industry, tourism and cruise liner business.
- The canal does not need the complicated and expensive locks system of the Panama Canal as the South China Sea and the Bay of Bengal are at the same level, thereby reducing construction and operation costs.

21. Exp. (d)

Southeast Asia

- Southeast Asia occupies a strategic position as it links the Paci-fic and the Indian Oceans and contains Straits of Malacca, the South China Sea, and is an important region for Japan.

22. Exp. (a)

- Asia showed the fastest growth rate of urbanization in the last three decades with 70% growth from 1975 level of urbanization followed by Latin America with 28 % growth.

23. Exp. (d)

Strait of Malacca

- Strait of Malacca, a waterway connecting the Andaman Sea (Indian Ocean) and the South China Sea (Pacific Ocean).
- It runs between the Indonesian island of Sumatra to the west and peninsular (West) Malaysia and extreme southern Thailand to the east and has an area of about 25,000 square miles (65,000 square km).
- Singapore comes across if one travels through the Strait of Malacca.

24. Exp. (c)

River system

- Pair 1 incorrect because: River Mekong flows into South China Sea
- Pair 2 incorrect because: River Thames flows into North Sea.
- Pair 3 correct: River Volga flows into Caspian Sea.
- Pair 4 correct: River Zambezi flows into Indian Ocean.

25. Exp. (d)

(See Map Below)

26. Exp. (c)

Geographical landforms

- Gandikota is a small village in the Kadapa district of Andhra Pradesh. The village is majorly known for housing the spectacular gorge which is famously adjudged as the Grand Canyon of India.
- The stunning gorge has been created by the waters of the famous river Pennar that streams from the Erramala hills.
- Penna (also known as Pinakini, Pennar, Penner, Penneru (Telugu), Pennai (Tamil)) is a river of southern India.
- India has always been a popular tourist destination for its historic forts, stunning palaces and dense jungles.
- Now, a lesser known gorge in the southern state of Andhra Pradesh is drawing visitors.
- The gorge is a stunning maze of jagged rocks layered in shades of red. The PennaRiver meanders through the canyon floor as it cuts through the Erramala hills.
- The area is known as the Grand Canyon of India because of its resemblance to the famous US landmark.
- It's also home to two ancient temples and a 12th Century fort that sits atop the hills surrounding the gorge.

27. Exp. (a)

Mediterranean region

- Levant, the region along the eastern Mediterranean shores, roughly corresponding to modern-day Israel, Jordan, Lebanon, Syria, and certain adjacent areas.

28. Exp. (c)

World mapping

- Afghanistan is completely landlocked—the nearest coast lies along the Arabian Sea, about 300 miles (480 km) to the south—and, because of both its isolation and its volatile political history, it remains one of the most poorly surveyed areas of the world. It is bounded to the east and south by Pakistan to the west by Iran **to the north by the Central Asian states of Turkmenistan, Uzbekistan, and Tajikistan.**

- It also has a short border with Xinjiang, China, at the end of the long, narrow (Wakhan Corridor), in the extreme northeast.

29. Exp. (c)

Location in news

- **Statement 1 is incorrect:** Bidibidi Refugee Settlement is a refugee camp in northwestern Uganda.
- **Statement 2 is correct**: Bidibidi is home to over 270,000 South Sudanese refugees
- **Statement 3 is correct**: Dadaab camps were established 30 years ago to accommodate Somalis fleeing their country's civil war.

30. Exp. (c)

Organization of Turkic State

- The Organization of Turkic States, formerly called the Turkic Council or the Cooperation Council of Turkic Speaking States, is an international organization comprising prominent independent Turkic countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Turkey and Uzbekistan.

31. Exp. (b)

Senkaku/Diaoyu islands Dispute:

- Japan and China claim the uninhabited islands, known as the Senkaku in Japan and Tiaoyu in China, as their own, but Japan has administered them since 1972. The Senkaku/Diaoyu Islands were formally claimed by Japan in 1895. After Japan's defeat in World War II, the island chain was controlled by the US until 1971 before its return. Since then, Japan has administered the island chains. China began to reassert claims over the Senkaku/Diaoyu Islands in the 1970s, citing historic rights to the area. However, Japan does not recognise Chinese claims. More recently, there has been a flare up in the region. The Japanese government said on Thursday it had protested to China regarding a set of names recently assigned by Beijing to seabed zones in the East China Sea, including the Senkaku/Diaoyu islands.

What is the dispute about?

- The dispute is over the claim of Senkaku islands, which have been controlled by the Japanese since 1895.
- However, between 1945 to 1972, the islands were administered by the United States. In 1971, the US handed over the authority to Japan in 1971.
- The island chain, claimed by China, Taiwan and Japan, is made up of five islets and three barren rocks covering an area of 7 square kilometres.

32. Exp. (c)

Countries in news

- **Pair 1 is incorrectly matched:**

Pair 2 is correctly matched:

(See Map Below)

- The president of Guinea was detained after a successful military coup in the West African nation. The coup was reportedly led by special task forces led by Colonel MamadyDoumbouya, the head of Guinean Special Forces.

Pair 3 is correctly matched:

- Lebanon's economy collapsed after it defaulted on about $31 billion of Eurobonds in March 2020, with its currency sinking more than 90 per cent against the US dollar on the black market. Political bickering and indecision by the previous parliament forced the economy into a tailspin.
- Inflation in the country has continued to surge and reached 206 per cent in April as the country elected a new parliament, which will have to put in place reforms to secure $3bn from the International Monetary Fund.
- Lebanon's economy contracted about 58 per cent between 2019 and 2021, with gross domestic product plummeting to $21.8bn in 2021, from about $52bn in 2019, said the World Bank.
- The depression is among the world's worst economic collapses since the 1850s, the Washington lender said in January. It is the largest contraction on a list of 193 countries.

Pair 4 is correctly matched:

- Tunisia's President Kais Saied on Monday extended his months-long suspension of parliament until new elections in December 2022, while calling for a July referendum on constitutional reforms.

33. Exp. (b)

Regions in news

- **Pair 1 is correctly matched:** A broad peninsula that lies between the Black Sea and the Mediterranean Sea and called Asia Minor (Lesser Asia) by the Romans, is the Asian part of modern Turkey, across Thrace. It lies across the Aegean Sea to the east of Greece and is usually known by its ancient name Anatolia.
- **Pair 2 is correctly matched:** The Amharaare one of the two largest ethnolinguistic groups in Ethiopia.
- **Pair 3 is incorrectly matched:** Cabo Delgado is a region in Mozambique.
- **Pair 4 is incorrectly matched:** Catalonia is a region of Spain.

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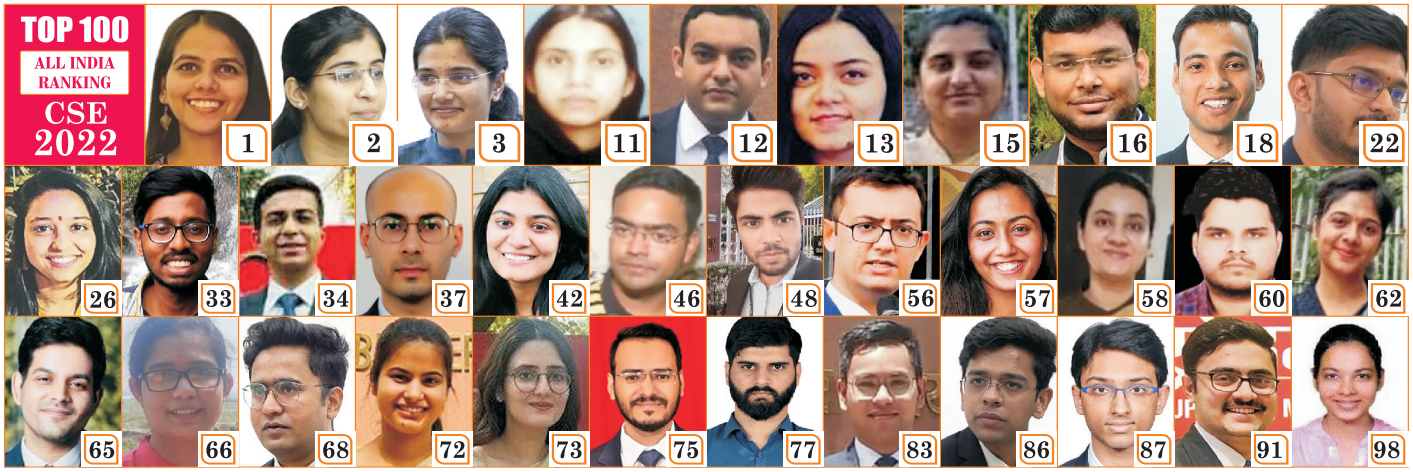

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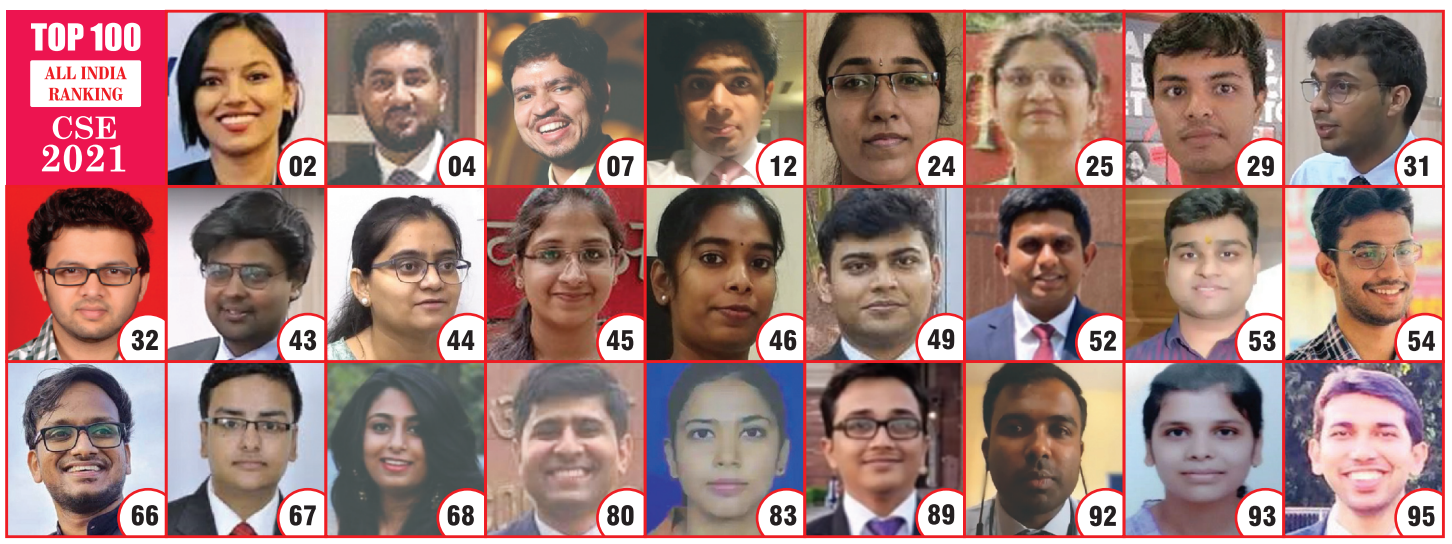

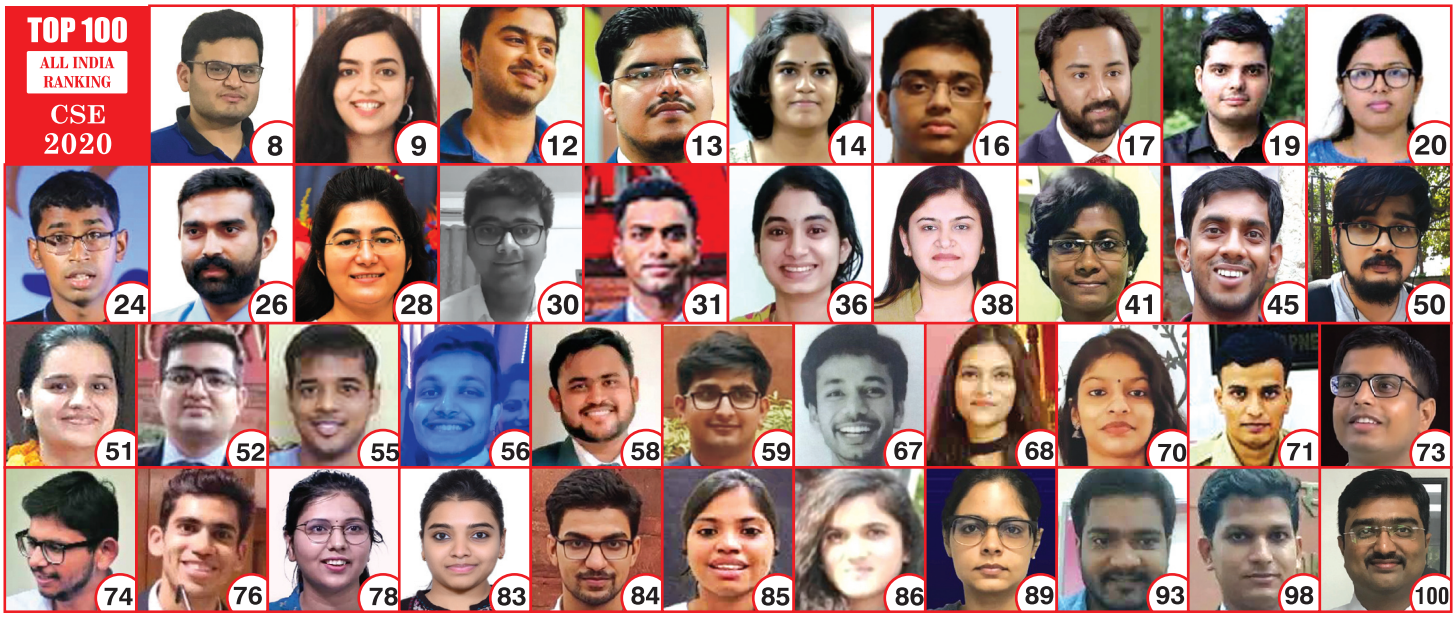

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