

Q.1) With reference to Pokkali paddy, consider the following statements:

1. It is a saltwater-tolerant paddy endemic to Kerala.
2. It has received a Geographical Indication (GI) tag.

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

Ans) c

Exp) Statement 1 is correct. Pokkali is a saltwater-tolerant paddy grown in the coastal fields of Alappuzha, Ernakulam and Thrissur districts. Endemic to central Kerala, the variety is now grown in only over 5,000 hectares.

Statement 2 is correct. The uniqueness of the Pokkali paddy has brought it the Geographical Indication (GI) tag and is the subject of continuing research. It grows to a height of up to 2 metres and can survive even during devastating floods.

Source) <https://www.thehindu.com/news/national/other-states/pokkali-rice-seedlings-travel-from-kerala-to-the-sunderbans/article32278833.ece>

<https://www.thehindu.com/news/national/kerala/paddy-in-brine-keralas-salt-water-tolerant-pokkali-paddy-variety/article25808277.ece/photo/1/>

Q.2) With reference to Alluvial soils, consider the following statements:

1. These soils cover more than 60 per cent of the total area of the country.
2. They are generally rich in potash but poor in phosphorus.
3. They are not found in the Peninsular region of India.
4. Khadar and Bhangar are two types of alluvial soils found in upper and middle Ganga plains.

Which of the statements given above is/are correct?

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

Ans) a

Exp) Statement 1 is incorrect.

Alluvial soils are widespread in the northern plains and the river valleys. **These soils cover about 40 per cent of the total area of the country.** They are depositional soils, transported and deposited by rivers and streams.

Statement 2 is correct. The alluvial soils vary in nature from sandy loam to clay. They are **generally rich in potash but poor in phosphorus.** The colour of the alluvial soils varies from the light grey to ash grey. Its shades depend on the depth of the deposition, the texture of the materials, and the time taken for attaining maturity. Alluvial soils are intensively cultivated.

Statement 3 is incorrect. In the Peninsular region, alluvial soils are found in deltas of the east coast and in the river valleys.

Statement 4 is correct. In the Upper and Middle Ganga plain, two different types of alluvial soils have developed, viz. Khadar and Bhangar. Khadar is the new alluvium and is deposited by floods annually, which enriches the soil by depositing fine silts. Bhangar represents a system of older alluvium, deposited away from the flood plains.

Both the Khadar and Bhangar soils contain calcareous concretions (Kankars). These soils are more loamy and clayey in the lower and middle Ganga plain and the Brahmaputra valley. The sand content decreases from the west to east.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 69

Q.3) Which of the following atmospheric conditions is/are associated with the winter season in India?

1. Bifurcation of the Subtropical Westerly Jet streams by the Himalayas.
2. Formation of strong upper air cyclonic conditions over Tibetan Plateau.
3. Presence of Western Cyclonic Disturbances.

Select the correct answer using the code given below.

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

Ans) b

Exp) Statement 1 is correct. All of Western and Central Asia remains under the influence of westerly winds along the altitude of 9-13 km from west to east during the Winter season. These winds blow across the Asian continent at latitudes north of the Himalayas roughly parallel to the Tibetan highlands (Figure 4.1). These are known as jet streams. **Tibetan highlands and Himalayas act as a barrier in the path of these jet streams. As a result, jet streams get bifurcated.** One of its branches blows to the north of the Tibetan highlands, while the southern branch blows in an eastward direction, south of the Himalayas.

Statement 2 is incorrect. The Tibetan plateau becomes very cold in winter, resulting in strong **anticyclonic conditions on the surface**, characterized by subsidence of air. This also results in upper air cyclonic conditions during winter.

Statement 3 is correct. The **western cyclonic disturbances which enter the Indian subcontinent from the west and the northwest during the winter months, originate over the Mediterranean Sea** and are brought into India by the westerly jet stream. An increase in the prevailing night temperature generally indicates an advance in the arrival of these cyclonic disturbances.

Q.4) Which of the statements given below is/are correct?

1. Social forestry means the management and protection of forests and afforestation on barren lands.
2. Farm forestry is the practice of cultivation and managing trees in compact blocks on agricultural lands.

Select the correct answer using the codes given below.

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

Ans) c

Exp) Statement 1 is correct - Social forestry means the management and protection of forests and afforestation on barren lands with the purpose of helping in the environmental, social, and rural development.

Statement 2 is correct - Farm forestry is the practice of cultivation and managing trees in compact blocks on agricultural lands. It is the practice adopted by farmers to grow trees for commercial and non-commercial purposes on their farmlands.

Q.5) 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
- b) 2 and 3 only
- c) 1 and 3 only
- d) 1, 2 and 3

Ans) c

Exp) Option c is correct

Since Himachal Pradesh lie outside of tropical region it could easily be eliminated and answer arrived at.

Tropical Wet Evergreen Forests are found in Assam, Arunachal Pradesh, Meghalaya, Nagaland, Tripura, West Bengal and Andaman and Nicobar Island and on the eastern and western slopes of the Western Ghats in such states as Tamil Nadu, Karnataka, Kerala and Maharashtra. They are also found in southern and western part of Mizoram, while semi-evergreen forests occur in its northern, north-western and central part.

The vegetation in Himachal Pradesh varies from dry scrub forests at lower altitudes to alpine pastures at higher altitudes. In between these two extremes, distinct vegetational zones of Mixed Deciduous Forests, Bamboo, Chir Pine, Oak, Deodar, Kail, Fir and Spruce are found.

Q.6) Which of the following factors affect the formation of soil?

1. Parent material
2. Climate
3. Vegetation
4. Relief
5. Time

Select the correct answer using code given below.

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

Ans) d

Exp) Soil is the mixture of rock debris and organic materials which develop on the earth's surface. **The major factors affecting the formation of soil are -**

- 1) relief,
- 2) parent material,
- 3) climate,
- 4) vegetation and other life-forms and
- 5) time.

Besides these, human activities also influence it to a large extent.

Components of the soil are mineral particles, humus, water and air. The actual amount of each of these depend upon the type of soil. Some soils are deficient in one or more of these, while there are some others that have varied combinations.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 68

Q.7) Consider the following statements regarding Indian Monsoon season:

1. The air pressure over India is lower than that over the southern part of the Arabian Sea and the Bay of Bengal.
2. Negative Indian Ocean Dipole corresponds to more than average rainfall in India.

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

Ans) a

Exp) Statement 1 is correct. The pressure over the mainland India is lower than the Arabian Sea and the Bay of Bengal because of high specific heat of water as water takes longer to get heated up and to cool down. This helps in bringing Monsoonal winds into India by creating **pressure gradient**.

Statement 2 is incorrect. It's **positive IOD (Indian Ocean Dipole)** that leads to more than average rainfall in India. Like ENSO, IOD (Indian Ocean Dipole) also has three phases—positive, negative and neutral. During the positive phase of IOD, sea surface temperatures are warmer in the western Indian Ocean (which gives a boost to monsoon winds) as compared to the eastern Indian Ocean. It has been observed that during the period of positive IOD, the Indian summer monsoon rainfall is considerably good as compared to the negative IOD period.

Q.8) Consider the following Biosphere Reserves in India.

1. Panchmarhi
2. Similipal
3. Kutch
4. Sunderbans
5. Nilgiri

Which of the sites given above are included in UNESCO's World Network of Biosphere Reserve?

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

Ans) c

Exp) There are total 11 biosphere reserves of India which have been recognized internationally UNESCO's World Network of Biosphere Reserve

- Nilgiri (First to be included)
- Gulf of Mannar
- Sunderban
- Nanda Devi
- Nokrek
- Pachmarhi
- Similipal
- Achanakmar - Amarkantak
- Great Nicobar
- Agasthyamala
- Kanchanzenga

Others which are not part under UNESCO's World Network of Biosphere Reserve:

- Cold Desert, Himachal Pradesh
- Dehang-Debang, Arunachal Pradesh
- Manas, Assam
- Dibru-Saikhowa, Assam
- Panna, Madhya Pradesh
- Kachchh, Gujarat (Largest Area)
- Seshachalam, Andhra Pradesh

Q.9) With reference to Project Elephant, consider the following statements:

1. Project Elephant was launched in year 1992.
2. The project is being implemented in all states of India.

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

Ans) a

Exp) **Statement 1 is correct.** Project Elephant (PE), a centrally sponsored scheme, was launched in February 1992 to provide financial and technical support to major elephant bearing States in the country for

protection of elephants, their habitats and corridors. It also seeks to address the issues of human-elephant conflict and welfare of domesticated elephants.

Statement 2 is incorrect. The Project is being implemented in 13 States / UTs, viz. Andhra Pradesh, Arunachal Pradesh, Assam, Jharkhand, Karnataka, Kerala, Meghalaya, Nagaland, Orissa, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal.

Q.10) When you travel in certain parts of India, you will notice red soil. What is the main reason for this colour?

- a) Abundance of magnesium
- b) Accumulated humus
- c) Presence of ferric oxides
- d) Abundance of phosphates

Ans) c

Exp) Option c is correct

Red soil in India is largely found in Deccan plateau. Red soil is less clayey and sandier in nature and has a rich content of iron and small amount of humus. Red soil is also known as yellow soil. The redness of the soil is due to the presence of Ferric oxides. It is the 2nd largest soil found in India from south of Bundelkhand to North of Rajmahal hill.

Q.11) With reference to Bru tribals, consider the following statements:

1. They are the largest tribal community of Arunachal Pradesh.
2. They are recognised as a Particularly Vulnerable Tribal Group.

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

Ans) b

Exp) Statement 1 is incorrect. The Brus spread across Tripura, Mizoram and parts of southern Assam. They are the most populous tribe in Tripura. Also known as Riangs in the state, they are ethnically different from the Mizos, with their own distinct language and dialect and form one of the 21 scheduled tribes of Tripura.

Statement 2 is correct. In Tripura, they are recognised as a Particularly Vulnerable Tribal Group (PVTG). In Mizoram, they have been targeted by groups that do not consider them indigenous to the State.

Source) <https://www.thehindu.com/news/national/other-states/brus-reject-resettlement-sites-proposed-by-tripura-non-brus/article32275912.ece>

Q.12) Which of the following statements is *not* correct regarding the climate of Southern India?

- a) Low Diurnal range of temperature.
- b) Low Annual range of temperature.
- c) Temperatures here are high throughout the year.
- d) Extreme climatic conditions are found here.

Ans) d

Exp) The Peninsular region of India does not have any well-defined weather season. Extreme climatic conditions are not found here. There is hardly any seasonal change in the distribution pattern of the temperature in coastal areas because of moderating influence of the sea and the proximity to the equator. For example, the mean maximum temperature for January at Thiruvananthapuram is as high as 31°C, and for June, it is 29.5°C. Temperatures at the hills of Western Ghats remain comparatively low. The hot weather season in south India is mild and not so intense as found in north India. The Peninsular situation of south India with moderating effect of the oceans keeps the temperatures lower than that prevailing in north India. So, temperatures remain between 26°C and 32°C. Due to altitude, the temperatures in the hills of Western Ghats remain below 25°C.

Q.13) Consider following reasons for the decline of wildlife in India:

1. Grazing by domestic cattle.
2. Incidence of forest fire.
3. Tree plantation drive by government
4. Rapid increase in the exploitation of forest resources.

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

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

Ans) c

Exp) Only statement 3 is incorrect. Tree plantation drives by government and civil society do not adversely affect wildlife.

Some of the important reasons of the declining of wildlife are as follows:

- 1) Industrial and technological advancement brought about a **rapid increase in the exploitation of forest resources.**
- 2) More and more lands were cleared for agriculture, human settlement, roads, mining, reservoirs, etc.
- 3) Pressure on forests mounted due to lopping for fodder and fuelwood and removal of small timber by the local people.
- 4) **Grazing by domestic cattle caused an adverse effect on wildlife and its habitat.**
- 5) Hunting was taken up as a sport by the elite and hundreds of wild animals were killed in a single hunt. Now commercial poaching is rampant.
- 6) **Incidence of forest fire.**

Q.14) They are generally clayey, deep and impermeable. They swell and become sticky when wet and shrink when dried. During the dry season, these soils develop wide cracks. Thus, there occurs a kind of 'self-ploughing'.

Which of the following soils can the lines given above be best attributed to?

- a) Laterite soil
- b) Regur soil
- c) Alluvial soil
- d) Arid soil

Ans) b

Exp) Black Soil: Black soil covers most of the Deccan Plateau which includes parts of Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh and some parts of Tamil Nadu. In the upper reaches of the Godavari and the Krishna, and the north western part of the Deccan Plateau, the black soil is very deep. **These soils are also known as the 'Regur Soil' or the 'Black Cotton Soil'. The black soils are generally clayey, deep and impermeable. They swell and become sticky when wet and shrink when dried. So, during the dry season, these soils develop wide cracks. Thus, there occurs a kind of 'self-ploughing'.** Because of this character of slow absorption and loss of moisture, the black soil retains the moisture for a very long time, which helps the crops, especially, the rain fed ones, to sustain even during the dry season.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 71

Q.15) 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
- b) 2 only

- c) Both 1 and 2
- d) Neither 1 nor 2

Ans) c

Exp) Statement 1 is correct. The duration of the monsoon decreases from southern India to northern India. The reasons behind this pattern is that since the rainfall in the Indian subcontinent is caused by moisture bearing south-west monsoon winds, the duration of the monsoon is highest nearby coastal regions and decreases onwards once the winds start moving towards the inland regions. This happens due to fast loosening of moisture in these winds.

Statement 2 is correct. The amount of annual rainfall in the northern plains of India decreases from east to west. This also happens due to the decrease in the moisture of the winds. As the moisture bearing winds of the Bay of Bengal branch of the south west monsoon move further inland, the moisture gradually decreases and results in low rainfall in the western states. Hence, states like Gujarat and Rajasthan in western India receive very little rainfall.

Q.16) Consider the following statements:

1. The temperate forests are called Sholas in the Nilgiris, Anaimalai, and Palani hills.
2. The mangroves are salt-tolerant plants occurring mainly between latitude 24 degrees North to 38 degrees South.

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

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

Ans) d

Exp) Statement 1 is correct - The temperate forests are called Sholas in the Nilgiris, Anaimalai and Palani hills. The word 'Shola' is probably derived from the Tamil language meaning grove. The Sholas are the patches of stunted tropical montane forest found in valleys amid rolling grassland in the higher montane regions of this area.

Statement 2 is correct - The mangroves are salt-tolerant plants occurring mainly between latitude 24 degrees north to 38 degrees south.

Q.17) Which of the pairs given below is/are correctly matched?

TRADITIONAL *CORRESPONDING*

SEASONS *MONTHS*

- | | |
|-------------|-------------------|
| 1. Vasanta | September-October |
| 2. Hemanta | July-August |
| 3. Shishira | January-February |

Select the answer using codes given below.

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

Ans) c

Exp)

SEASONS *MONTHS*

- | | |
|----------|-------------------|
| Vasanta | March-April |
| Grishma | May-June |
| Varsha | July-August |
| Sharada | September-October |
| Hemanta | November-December |
| Shishira | January-February |

Q.18) Consider the following statements regarding North American Continent:

- 1. Bering strait separates USA and Russia
- 2. Florida strait separates USA and Cuba

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2 only
- d) Neither 1 nor 2

Ans) c

Exp)



Q.19) Consider the following statements:

1. Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern part of the Deccan Plateau.
2. The coarse-grained red and yellow soils are normally fertile, whereas fine-grained soils found in dry upland areas are poor in fertility.

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

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

Ans) b

Exp) Statement 1 is correct.

Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern part of the Deccan Plateau.

Along the piedmont zone of the Western Ghat, long stretch of area is occupied by red loamy soil. Yellow and red soils are also found in parts of Orissa and Chattisgarh and in the southern parts of the middle Ganga plain.

Statement 2 is incorrect

The fine-grained red and yellow soils are normally fertile, whereas coarse-grained soils found in dry upland areas are poor in fertility. They are generally poor in nitrogen, phosphorous and humus.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 71

Q.20) 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 answer using the code given below.

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

Ans) a

Exp) Option a is correct

The Eastern Himalayan broadleaf forests are diverse and species-rich, with a great diversity of oaks and rhododendrons in particular. The ecoregion has two broad forest types: evergreen and deciduous. Evergreen forests are characterized by oaks together with Rhododendrons. Whereas, Western Himalayas are endowed with diverse vegetation types, ranging from tropical moist deciduous to temperate and sub-alpine forests, grasslands, alpine scrub and meadows. The Western Himalayan broadleaf forests divided into two types: evergreen and deciduous broadleaved forests. The evergreen broadleaf forest is dominated by oaks.

Sandalwood is found in the tropical dry deciduous forests of India. The woods are heavy, yellow, and fine-grained, and, unlike many other aromatic woods, they retain their fragrance for decades. Sandalwood oil is extracted from the woods for use. Natural sandalwood trees can be found in Kerala, Karnataka, Tamil Nadu and Andhra Pradesh in India.

Q.21) Consider the following statements regarding the National Green Tribunal (NGT):

1. Its Chairperson is a retired Judge of the Supreme Court.
2. It has jurisdiction over all civil cases involving a substantial question relating to environment.
3. Its decision cannot be challenged before the Supreme Court.

Which of the statements given above is/are correct?

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

Ans) a

Exp) The National Green Tribunal (NGT) was established in the year 2010 under the National Green Tribunal Act of 2010 to dispose of civil cases relating to environmental protection and conservation of forests and other natural resources, including enforcement of any legal rights related to the environment.

Statement 1 is correct. The Chairperson of the NGT is a retired Judge of the Supreme Court. Other Judicial members are retired Judges of High Courts. Each bench of the NGT will comprise of at least one Judicial Member and one Expert Member.

Statement 2 is correct. The tribunal, according to the NGT Act of 2010, shall have the 'jurisdiction over all civil cases where a substantial question relating to environment (including enforcement of any legal right relating to environment) is involved and such question arises out of the implementation of the enactments specified in Schedule I', namely:

- The Water (Prevention and Control of Pollution) Act, 1974;
- The Water (Prevention and Control of Pollution) Cess Act, 1977;
- The Forest (Conservation) Act, 1980;
- The Air (Prevention and Control of Pollution) Act, 1981;
- The Environment (Protection) Act, 1986;
- The Public Liability Insurance Act, 1991;
- The Biological Diversity Act, 2002

Statement 3 is incorrect. The Tribunal has powers to review its own decisions. If this fails, the decision can be challenged before the Supreme Court within ninety days.

Source) <https://www.thehindu.com/news/national/ngt-conveys-discontent-to-environment-ministry/article32243210.ece>

Q.22) Which of the following seas surrounds North America Continent?

1. Bering sea
2. Beaufort sea
3. Labrador sea
4. Sargasso sea

Select the correct answer using the codes given below.

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

Ans) d

Exp)



Q.23) Which of the following statements is/are correct regarding the mechanism of weather in India during summer season:

1. Northward shift of ITCZ attracts the maritime tropical air mass from the southern hemisphere.
2. An easterly jet stream flows over the southern part of the Indian peninsula.

Select the answer using the codes given below.

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

Ans) c

Exp) Mechanism of Weather in the Summer Season:

Statement 1 is correct. i) Surface Pressure and Winds : As the summer sets in and the sun shifts northwards, the wind circulation over the subcontinent undergoes a complete reversal at both, the lower as well as the upper levels. By the middle of July, the low pressure belt nearer the surface [termed as Inter Tropical Convergence Zone (ITCZ)] shifts northwards, roughly parallel to the Himalayas between 20° N and 25° N. By this time, the westerly jet stream withdraws from the Indian region. In fact, meteorologists have found an interrelationship between the northward shift of the equatorial trough (ITCZ) and the withdrawal of the westerly jet stream from over the North Indian Plain. It is generally believed that there is a cause and effect relationship between the two. The ITCZ being a zone of low pressure, attracts inflow of winds from different directions. **The maritime tropical airmass (mT) from the southern hemisphere, after crossing the equator, rushes to the low pressure area in the general southwesterly direction. It is this moist air current which is popularly known as the southwest monsoon.**

Statement 2 is correct. Jet Streams and Upper Air Circulation : The pattern of pressure and winds as mentioned above is formed only at the level of the troposphere. **An easterly jet stream flows over the southern part of the Peninsula in June**, and has a maximum speed of 90 km per hour (Figure 4.3). In August, it is confined to 15 degree N latitude, and in September up to 22 degree N latitudes. The easterlies normally do not extend to the north of 30 degree N latitude in the upper atmosphere.

Q.24) Which of the following statements is *incorrect* with regard to Laterite soils?

- a) They are poor in organic matter and nitrogen.
- b) These soils are widely cut as brick for use in house construction.
- c) These soils develop in areas with high temperature and high rainfall.
- d) These soils are confined only to the Western ghats in India.

Ans) d

Exp) Option a is correct. These soils are poor in organic matter, nitrogen, phosphate and calcium, while iron oxide and potash are in excess. Hence, laterites are not suitable for cultivation; however, application of manures and fertilisers are required for making the soils fertile for cultivation. Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for tree crops like cashew.

Option b is correct. Laterite soils are widely cut as bricks for use in house construction.


Option c is correct. Laterite has been derived from the Latin word 'Later' which means brick. The laterite soils develop in areas with high temperature and high rainfall. These are the result of intense leaching due to tropical rains. With rain, lime and silica are leached away, and soils rich in iron oxide and aluminium compounds are left behind. Humus content of the soil is removed fast by bacteria that thrives well in high temperature.

Option d is incorrect. They are also found in Assam, in addition to the higher areas of the Peninsular region.

These soils have mainly developed in the higher areas of the Peninsular plateau. The laterite soils are commonly found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh and the hilly areas of Orissa and Assam.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 71

Q.25) Match the rivers labelled A, B, C and D on the given map in List-I with their names given in the List-II and select the correct answer using the codes given below the lists:

<i>List-I</i>	<i>List-II</i>
	1. St. Lawrence 2. Orinoco 3. Mackenzie 4. Amazon 5. Yukon

Codes:

- a) A-4; B-3; C-2; D-1
- b) A-5; B-3; C-1; D-2
- c) A-5; B-4; C-1; D-3
- d) A-3; B-1; C-4; D-2

Ans) b

Exp) Option b is correct

In the given diagram of North America and South America. 'A' marked river is Yukon 'B' marked river is Mackenzie 'C' marked river is St. Lawrence 'D' marked river is Orinoco.

Q.26) Consider the following statements about **Indian wetlands**:

1. In India majority of wetlands are areas under paddy cultivation.
2. Chilika Lake and Keoladeo National Park are protected as water-fowl habitats under Ramsar Convention.

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

Ans) c

Exp) Statement 1 is correct. India has a rich variety of wetland habitats. **About 70 per cent of this comprises areas under paddy cultivation.** The total area of wet land is 3.9 million hectares. The country's wetlands have been grouped into eight categories.

Statement 2 is correct. Two sites — **Chilika Lake (Odisha) and Keoladeo National Park (Bharatpur) are protected as water-fowl habitats under the Convention of Wetlands of International Importance (Ramsar Convention).**

Q.27) Consider the following statements regarding the North American Continent:

1. To the western margins of the continent lie the Andes Mountains.
2. To the eastern margins of the continent lie the Appalachian Mountains.

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

Ans) b

Exp) Statement 1 is incorrect - The Andes mountain ranges occupy the western margins of the South American continent whereas Rocky Mountain ranges occupy the western margins of the North American continent.

Statement 2 is correct - Appalachian Mountain ranges lie at the eastern North American continent.

Q.28) Which of the following best describes the term ‘Badland topography’?

- a) An agricultural land which has become infertile due to continued practice of monoculture for many years.
- b) An agricultural land rendered infertile and toxic due to overuse of chemical fertilizers and pesticides.
- c) A region with a large number of deep gullies or ravines.
- d) A forest land after its use for shifting cultivation practiced by tribals.

Ans) c

Exp) Option c is correct. A region with a large number of deep gullies or ravines is called a badland topography.

They develop due to soil erosion. Ravines are widespread, in the Chambal basin. Besides this, they are also found in Tamil Nadu and West Bengal. The **Chambal** is a geographical and cultural region in north-central India. It is well-known for its badlands and extensive ravine systems, that have hosted an untold number of dacoits.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 73

Q.29) Consider the following statements regarding India’s disaster vulnerability

1. Coromandal coast have high cyclone vulnerability
2. Eastern India is vulnerable to floods
3. Western India is vulnerable to draught

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

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

Ans) d

Exp) Statement 1 is correct – Coromandal coast lies on the Eastern coast of India bordering Bay of Bengal. Bay of Bengal experience consistent cyclonic activities making coromandal coast most vulnerable to cyclones in India.

Statement 2 is correct – Eastern Indian states like Bihar, West Bengal, Assam are among the highest flood prone areas due to presence of heavy volume perennial Himalayan Rivers.

Statement 3 is correct – Western India region comprising the states of Rajasthan and Gujrat are arid and semi-arid regions with average rainfall below 150mm making them more vulnerable to draughts.

Q.30) The Himalayan ranges show a succession of vegetation from the tropical to the tundra, which change in with the altitude. Arrange the following type of Himalayan vegetation in the ascending order of their altitude:

1. Temperate grassland
2. Alpine forest
3. Tundra vegetation
4. Wet temperate forest
5. Deciduous forest

Select the correct answer using the codes given below.

- a) 5-4-3-1-2
- b) 4-1-2-5-3
- c) 4-1-2-3-5
- d) 5-4-1-2-3

Ans) d

Exp) The Himalayan ranges show a succession of vegetation from the **tropical to the tundra**, which change in with the altitude. **Deciduous forests** are found in the foothills of the Himalayas. It is succeeded by the **wet temperate type** of forests between an altitude of 1,000-2,000 m. Between 1,500-1,750 m, pine forests are also well-developed in this zone, with Chir Pine as a very useful commercial tree. Blue pine and spruce appear at altitudes of 2,225-3,048 m. At many places in this zone, **temperate grasslands** are also found. But in the higher reaches there is a transition to **Alpine forests and pastures**. Silver firs, junipers, pines, birch and rhododendrons, etc. occur between 3,000-4,000 m. At higher altitudes, mosses and lichens form part of the **tundra vegetation**.

Q.31) Consider the following statements regarding the Aravalli Mountain range:

1. It mainly consists of Block Mountains formed by the process of faulting.
2. It spans across six States in India.
3. Its highest peak is Guru Shikhar.

Which of the statements given above is/are **not** correct?

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

Ans) a

Exp) Statement 1 is incorrect. The Aravalli mountain range of North-western India are one of the oldest fold mountains of the world formed due to intense compressional forces. Unlike the much younger Himalayan section nearby, the Aravalli Mountains are much older that can be traced back to the Proterozoic Eon. The collision between the Bundelkhand craton and the Marwar craton is believed to be the primary mechanism for the development of the mountain range.

Statement 2 is incorrect. The Aravalli mountain range runs approximately 692 km in a south-west direction, starting near Delhi, passing through southern Haryana and Rajasthan, and ending in Gujarat. Thus, they pass through 3 States and 1 Union territory.

Statement 3 is correct. Guru Shikhar, a peak in the Arbuda Mountains of Rajasthan, is the highest point of the Aravalli Range. It rises to an elevation of 1,722 metres.

Source) <https://indianexpress.com/article/explained/explained-how-aerial-seeding-is-helping-plantation-in-hard-to-access-areas-in-the-aravallis-6529940/>

Q.32) Which of the following methods can be adopted for reducing soil erosions?

1. Cover cropping
2. Mixed farming
3. Controlled grazing
4. Contour bunding
5. Shifting cultivation

Select the correct answer using the code given below.

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

Ans) c

Exp) Option c is correct.

Soil erosion is essentially aggravated by faulty practices. The first step in any rational solution is to check open cultivable lands on slopes from farming. Lands with a slope gradient of 15 - 25 per cent should not be used for cultivation. If at all the land is to be used for agriculture, terraces should carefully be made. **Over-grazing and shifting cultivation in many parts of India have affected the natural cover of land and given rise to extensive erosion.** It should be regulated and controlled by educating villagers about the consequences.

Contour bunding, Contour terracing, regulated forestry, controlled grazing, cover cropping, mixed farming and crop rotation are some of the remedial measures which are often adopted to reduce soil erosion.

Cover cropping - In agriculture, cover crops are plants that are planted to cover the soil rather than for the purpose of being harvested. Cover crops manage soil erosion, soil fertility, soil quality, water, weeds, pests, diseases, biodiversity and wildlife in an agroecosystem—an ecological system managed and shaped by humans.

Controlled grazing - Controlled grazing includes any system in which the producer controls the grazing pattern of the cattle. It is also known as rotational grazing.

Mixed Farming - Mixed farming is a type of farming which involves both the growing of crops and the raising of livestock.

Contour bunding In this, a series of checks are put in place across the slope of a hilly surface.

The bunds divide the entire slope into numerous smaller segments which help in reducing the runoff along the slopes, ensuring greater absorption of rainwater on the slopes thus controlling soil erosion.

Sometimes, the bunds can be in the form of retaining walls.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 74

Q.33) Which of the following statements is/are *incorrect* regarding the La Nina event?

1. The Mascarene high gets weakened.
2. Severe droughts occur in eastern Australia.

Select the answer using the codes given below.

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

Ans) c

Exp) Statement 1 is incorrect. A stronger high pressure will produce stronger winds or monsoon current. During the La Nina year, India experiences flood like condition because the **Mascarene high gets strong** which in turn produces strong monsoon current and thus strong monsoon conditions in India.

Statement 2 is incorrect. Some of the other weather effects of La Niña include:

Abnormally heavy monsoons in India and Southeast Asia, cool and wet winter weather in southeastern Africa, **wet weather in eastern Australia**, cold winter in western Canada and northwestern United States, winter drought in the southern United States etc.

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Q.34) Consider the following statements with respect to North America

1. Mojave desert is located near California peninsula.
2. Edwards plateau is located near Gulf of St. Lawrence.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) 1 and 2 only
- d) Neither 1 nor 2

Ans) a

Exp) Statement 1 is correct and statement 2 is incorrect –



Q.35) Which of the following steps can mitigate or prevent floods?

1. Construction of Dams
2. Establishing cyclone warning centres
3. Discouraging construction on upper reaches of rivers

Select the correct answers using the codes given below.

- a) 1 only

- b) 2 only
- c) 1, 2 and 3 only
- d) 1 and 3 only

Ans) c

Exp) Some major flood mitigation and prevention measures are as follows –

- 1) Construction of flood protection embankments in flood prone areas
- 2) Construction of dams
- 3) Afforestation
- 4) Discouraging construction activities in upper reaches of floor creating river
- 5) Removal of human encroachment
- 6) Establish cyclone information centres to provide relief in coastal areas hit by storm surges

Q.36) It is found that arable land in the irrigated zones of India is turning saline. Which among the following is the most direct reason for this?

- a) Practice of Monoculture for cereal production
- b) Over irrigation
- c) Addition of gypsum
- d) Use of chemical fertilizers

Ans) b

Exp) Option b is correct.

A fairly large area of arable land in the irrigated zones of India is becoming saline because of overirrigation. The salt lodged in the lower profiles of the soil comes up to the surface and destroys its fertility. This problem is common in all the command areas of the river valley projects, which were the first beneficiaries of the Green Revolution. According to estimates, about half of the total land of India is under some degree of degradation.

In the areas of intensive cultivation with excessive use of irrigation, especially in areas of green revolution, the fertile alluvial soils are becoming saline. Excessive irrigation with dry climatic conditions promotes capillary action, which results in the deposition of salt on the top layer of the soil. In such areas, especially in Punjab and Haryana, farmers are advised to add **gypsum to solve the problem of salinity in the soil.**

Source: NCERT, Geography, Chapter- Soil- Pg.no. 73

Q.37) Consider the following statement regarding landslides

1. It is controlled by macro factors unlike other disasters which are controlled by micro factors.
2. Landslides are a result of slow sliding of large mass of bedrocks.

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

- a) 1 only
- b) 2 only
- c) 1 and 2 only
- d) Neither 1 nor 2

Ans) c

Exp) Statement 1 is incorrect – Unlike other disasters that are sudden unpredictable and are largely controlled by macro or regional factors, **landslides are largely controlled by highly localised or micro factors**, hence gathering information and monitoring the possibilities of landslide is not only difficult by also immensely cost intensive.

Statement 2 is incorrect – Land slide **happens due to rapid sliding** of a large mass of bedrocks. Disasters due to landslides are in general far less dramatic than due to earthquakes volcanic eruptions tsunamis and cyclones but their impact on natural environment and national economy is in no what less sever.

Q.38) Which of the following important species are found in tropical thorn forest.

- 1. Khejri
- 2. Ber
- 3. Teak
- 4. Neem
- 5. Sal

Select the correct answer using codes given below.

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

Ans) b

Exp) Tropical Thorn Forests:

Tropical thorn forests occur in the areas which receive rainfall less than 50 cm. These consist of a variety of grasses and shrubs. It includes semi-arid areas of south west Punjab, Haryana, Rajasthan, Gujarat, Madhya Pradesh and Uttar Pradesh. In these forests, plants remain leafless for most part of the year and give an expression of scrub vegetation. **Important species found are babool, ber, and wild date palm, khair, neem, khejri, palas, etc.** Tussocky grass grows upto a height of 2 m as the under growth.

Teak, Sal, shisham, hurra, mahua, amla, semul, kusum, and sandalwood, etc are **species of Moist deciduous forest.**

Q.39) Consider the following statement regarding Tropical Cyclones

1. They are confined to 5 degree North and South latitudes.
2. They are energised by the latent heat released due to condensation of moisture in the wind.
3. They require presence of strong vertical winds for the formation.

Which of the statements given above is/are correct?

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

Ans) b

Exp) Statement 1 is incorrect – Tropical cyclones are low pressure **areas confined to 30 degree north and 30 degree south latitudes** in the atmosphere around which high velocity winds blow. The 5 degree north and south is equatorial belt of variable winds and calms also called as doldrums and cyclones hardly occur in this region.

Statement 2 is correct – A tropical cyclone or hurricane is like a heat engine that is energised by the **release of latent heat on the account of the condensation** of moisture that the wind gathers after moving over the oceans and seas.

Statement 3 is Incorrect – Some initial conditions for the emergence of a tropical cyclone are – large and continuous supply of warm water, strong Coriolis force, unstable conditions in troposphere, **absence of strong vertical wind wedge** which disturbs the vertical transport of latent heat.

Q.40) Which of the following factors can harm the soil?

1. Hardening of soil due to use of chemical fertilizers in the absence of organic manures.
2. Decline in nutritional status of the soil
3. Depth of the soil goes down due to erosion

Select the correct answer using the code given below.

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

Ans) d

Exp) Statement 1 is correct. Chemical fertilisers in the absence of organic manures are also harmful to the soil. Unless the soil gets enough humus, chemicals harden it and reduce its fertility in the long run. This problem is common in all the command areas of the river valley projects, which were the first beneficiaries

of the Green Revolution. According to estimates, about half of the total land of India is under some degree of degradation.

Statements 2 and 3 are correct. In a broad sense, soil degradation can be defined as the **decline in soil fertility, when the nutritional status declines and depth of the soil goes down due to erosion and misuse.** Soil degradation is the main factor leading to the depleting soil resource base in India. The degree of soil degradation varies from place to place according to the topography, wind velocity and amount of the rainfall.

Source: NCERT, Geography, Chapter- Soil- Pg.no. 72

Q.41) Which of the following sectors are provided credit under the Priority Sector Lending (PSL) in India?

1. Micro, Small and Medium Enterprises
2. Housing
3. Education
4. Renewable Energy

Select the correct answer using the code given below:

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

Ans) d

Exp) The Reserve Bank of India (RBI) has recently decided to broaden the scope of Priority Sector Lending (PSL) by including start-ups and enhancing borrowing limits for renewable energy sectors.

The central bank would also increase the targets for lending to 'small and marginal farmers' and 'weaker sections' under the PSL. The eligible entities get access to credit on easier terms from banks under the PSL.

Some of the categories that are included under the Priority Sector Lending (PSL) in India are:

- Agriculture
- Micro, Small and Medium Enterprises (MSME)
- Export Credit
- Education
- Housing
- Social Infrastructure
- Renewable Energy

Source) <https://www.newindianexpress.com/business/2020/aug/06/rbi-to-bring-start-ups-under-priority-sector-lending-category-2179927.html>

Q.42) “These are dreaded evening thunderstorms in Bengal and Assam. Their notorious nature can be understood from the local nomenclature of ‘Kalbaisakhi’, a calamity of the month of Baisakh. These showers are useful for tea, jute and rice cultivation. In Assam, these storms are also known as “Bardoli Chheerha”.

Identify the correct Local Storms of Hot Weather Season from the above given information?

- a) Mango Shower
- b) Blossom Shower
- c) Norwesters
- d) Loo

Ans) c

Exp) Some Famous Local Storms of Hot Weather Season :

- 1) **Mango Shower** : Towards the end of summer, there are pre-monsoon showers which are a common phenomena in Kerala and coastal areas of Karnataka. Locally, they are known as mango showers since they help in the early ripening of mangoes.
- 2) **Blossom Shower** : With this shower, coffee flowers blossom in Kerala and nearby areas.
- 3) **Loo** : Hot, dry and oppressing winds blowing in the Northern plains from Punjab to Bihar with higher intensity between Delhi and Patna.
- 4) **Norwesters** : These are dreaded evening thunderstorms in Bengal and Assam. Their notorious nature can be understood from the local nomenclature of ‘Kalbaisakhi’, a calamity of the month of Baisakh. These showers are useful for tea, jute and rice cultivation. In Assam, these storms are known as “Bardoli Chheerha”.

Q.43) Consider the following statements regarding Tsunami

1. Both Earthquake and volcanic eruptions can trigger Tsunami.
2. Speed of Waves depends on depth of water.
3. Tsunami waves are of short wavelengths in deep oceans.

Which of the statements given above is/are correct?

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

Ans) c

Exp) Statement 1 is correct – Earth quake and volcanic eruptions that cause the sea floor to move abruptly resulting in sudden displacement of ocean water in the form of high vertical waves are called tsunamis or seismic sea waves.

Statement 2 is correct – The speed of wave in the ocean depends upon the depth of water. It is more in the shallow water than in the ocean deep. As a result of this the impact of tsunami is less over the ocean and more near the coast where they cause large scale devastations.

Statement 3 is incorrect – Tsunami wave over deep water has very long wave length and limited wave height, when tsunami wave enters shallow water its wave length gets reduced and the period remained unchanged which increases the wave height.

Q.44) Consider the following statements:

1. Gully erosion is a type of water erosion.
2. Sheet erosion is a type of wind erosion.
3. Check dams can be used to check water erosion.
4. Shelter belts can be used to check wind erosion.

Which of the statements given above is/are correct?

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

Ans) b

Exp) Wind and water are powerful agents of soil erosion because of their ability to remove soil and transport it. Wind erosion is significant in arid and semi-arid regions. In regions with heavy rainfall and steep slopes, erosion by running water is more significant.

Statement 1 is correct & Statement 2 is incorrect.

Water erosion which is more serious and occurs extensively in different parts of India, takes place mainly in the form of sheet and gully erosion.

Sheet erosion takes place on level lands after a heavy shower and the soil removal is not easily noticeable. But it is harmful since it removes the finer and more fertile top soil.

Gully erosion is common on steep slopes. Gullies deepen with rainfall, cut the agricultural lands into small fragments and make them unfit for cultivation.

Statement 3 is correct. Efforts should be made to prevent gully erosion and control their formation. Finger gullies can be eliminated by terracing. In bigger gullies, the erosive velocity of water may be reduced by

constructing a series of check dams. Special attention should be made to control headward extension of gullies. This can be done by gully plugging, terracing or by planting cover vegetation.

Statement 4 is correct. In arid and semi-arid areas, efforts should be made to protect cultivable lands from encroachment by sand dunes through developing shelter belts of trees and agro-forestry. Shelterbelts can provide a relatively cheap and long-term option for reducing wind erosion on farms. Shelterbelts are used to decrease windspeed within the sheltered zone and reduce the erosion of fertile soils on agricultural land. This can increase the productivity of agricultural land by protecting this valuable topsoil and nutrients.

In the wind erosion areas, windbreaks and shelterbelts are to be planted. They prevent the soil erosion, arrest the desert and protect the agricultural and residential lands from dust-storms. A row of trees and shrubs planted across the winds-direction is the most effective. It reduces the wind speed up to 60-80% on leeward side. The height of tall tree and length of wind break determine the extent of protection provided to soil.

To control wind erosion, the capacity of shelterbelt depends upon the speed and direction of wind. In case of high wind speed, the protective area is reduced and, in such areas, the interval between two shelterbelts is to be reduced. To counter winds direction, it is necessary to be long length of windbreak so that wind blows across the wind break. Depending upon the porosity of shelterbelt, certain amount of wind passes through it and some deflects & crosses over it. Thus, it does not produce turbulence of air.

Source: <http://agropedia.iitk.ac.in/content/windbreaks-and-shelterbelts>

<https://agriculture.vic.gov.au/farm-management/soil/erosion/shelterbelts-for-control-of-wind-erosion>

Q.45) Consider the following Pairs

1. Meteorological drought – unavailability of water in reservoirs
2. Agricultural drought – Inadequate rainfall
3. Hydrological drought – Low soil moisture

Which of the pairs given above is/are *incorrectly* matched?

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

Ans) d

Exp) All of the given pairs are incorrectly matched.

Meteorological Drought – It is a situation when there is a prolonged period of inadequate rainfall marked with mal distribution of the same over time and space.

Agricultural Drought – It is also known as soil moisture drought, characterised by low soil moisture that is necessary to support the crops thereby resulting in crop failures.

Hydrological Drought – It results when the availability of water in different storages and reservoirs like aquifers, lakes, reservoirs etc. falls below what the precipitation can replenish.

Q.46) Which of the following forest covers the maximum area of India?

- a) Tropical Dry Deciduous Forest
- b) Tropical Moist Deciduous Forest
- c) Subtropical Semi-Evergreen Forest
- d) Subtropical Broadleaved Hill Forest

Ans) a

Exp) The forest with maximum area in chronological order as follows:

- 1) Tropical Dry Deciduous Forest - 40.86% of the total forest cover
- 2) Tropical Moist Deciduous Forest - 17.65% of the total forest cover
- 3) Subtropical Semi-Evergreen Forest - 9.27 of the total forest cover
- 4) Subtropical Broadleaved Hill Forest - 4.26 of the total forest cover

Q.47) Consider the following statements regarding retreating southwest monsoon season:

1. It is marked by clear skies and rise in temperature.
2. There is an increase in cyclonic activity because of formation of intense frontal cyclones.

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

Ans) a

Exp) Statement 1 is correct. The retreating southwest monsoon season is marked by clear skies and rise in temperature. The land is still moist. Owing to the conditions of high temperature and humidity, the weather becomes rather oppressive. This is commonly known as the 'October heat'.

Statement 2 is incorrect. The widespread rain in this season is associated with the passage of cyclonic depressions which originate over the Andaman Sea and manage to cross the eastern coast of the southern Peninsula. These tropical cyclones are very destructive. The thickly populated deltas of the Godavari, Krishna and Kaveri are their preferred targets. Every year cyclones bring disaster here. A few cyclonic storms also strike the coast of West Bengal, Bangladesh and Myanmar.

Hence, these are tropical cyclones, not frontal (or temperate) cyclones.

Tropical cyclones are the result of thermally created Low pressure systems.

Frontal cyclones are the result of formation of fronts between 2 air masses.

Q.48) Which of the following is/ are correct regarding South West Indian Monsoon?

1. Tamil Nadu coast remains dry from Bay of Bengal branch of Southwest Monsoon.
2. The absence of Coriolis force could have no impact on the nature of Indian Monsoon.
3. India receives most of its rainfall from Bay of Bengal branch of Southwest Monsoon.

Select the answer using the codes given below.

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

Ans) a

Exp) Statement 1 is correct. It is important to know why the Tamil Nadu coast remains dry during this season.

There are two factors responsible for it:

- 1) The Tamil Nadu coast is situated parallel to the Bay of Bengal branch of southwest monsoon.
- 2) It lies in the rain shadow area of the Arabian Sea branch of the south-west monsoon.

Statement 2 is incorrect. Coriolis force has impact on nature of Indian Monsoon. The Coriolis force bends the trade wind from South East to South west trade wind as the South East wind crosses the equator.

Statement 3 is correct. India receives most of its rainfall from Bay of Bengal branch of Southwest Monsoon.

Q.49) Consider the following statements regarding Earthquake

1. Bureau of Indian Standard has divided India into four seismic zones with zone V seismically the most active region.
2. The location below the earth's surface where the earthquake starts is called the hypocenter whereas the location directly above it on the surface of the earth is called the epicenter.
3. The Love Waves and Rayleigh waves are types of the Surface Waves of the earthquake.

Which of the statements given above is/are correct?

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

Ans) d

Exp) Statement 1 is correct - Earthquake-prone areas of the country have been identified on the basis of scientific inputs relating to seismicity, earthquakes occurred in the past and tectonic setup of the region. Based on these inputs, the Bureau of Indian Standards has grouped the country into four seismic zones, viz. Zone II, III, IV, and V. (Note - there is no Zone I in this specifications) Of these, Zone V is seismically the most active region, while zone II is the least. Broadly,

- 1) Zone - V comprises entire northeastern India, parts of Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Rann of Kutch in Gujarat, part of North Bihar and Andaman & Nicobar Islands.
- 2) Zone - IV covers the remaining parts of Jammu and Kashmir and Himachal Pradesh, National Capital Territory (NCT) of Delhi, Sikkim, Northern Parts of Uttar Pradesh, Bihar and West Bengal, parts of Gujarat and small portions of Maharashtra near the west coast and Rajasthan.
- 3) Zone - III comprises Kerala, Goa, Lakshadweep islands, remaining parts of Uttar Pradesh, Gujarat and West Bengal, Parts of Punjab, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Maharashtra, Orissa, Andhra Pradesh, Tamilnadu and Karnataka.
- 4) Zone - II covers the remaining parts of the country.

Statement 2 is correct - An earthquake is what happens when two blocks of the earth suddenly slip past one another. The surface where they slip is called the fault or fault plane. The location below the earth's surface where the earthquake starts is called the hypocenter, and the location directly above it on the surface of the earth is called the epicenter. Sometimes an earthquake has foreshocks. These are smaller earthquakes that happen in the same place as the larger earthquake that follows. Scientists can't tell that an earthquake is a foreshock until the larger earthquake happens. The largest, main earthquake is called the mainshock. Mainshocks always have aftershocks that follow. These are smaller earthquakes that occur afterwards in the same place as the mainshock. Depending on the size of the mainshock, aftershocks can continue for weeks, months, and even years after the mainshock!

Statement 3 is correct - The p-waves and s-waves are two main types of earthquake waves. The third general type of earthquake wave is called a surface wave, reason being is that its motion is restricted to near the ground surface. Such waves correspond to ripples of water that travel across a lake. Surface waves in earthquakes can be divided into two types.

- 1) The first is called a Love wave. Its motion is essentially that of S waves that have no vertical displacement; it moves the ground from side to side in a horizontal plane but at right angles to the direction of propagation. The horizontal shaking of Love waves is particularly damaging to the foundations of structures.
- 2) The second type of surface wave is known as a Rayleigh wave. Like rolling ocean waves, Rayleigh waves wave move both vertically and horizontally in a vertical plane pointed in the direction in which the waves are traveling.

Surface waves travel more slowly than body waves (P and S); and of the two surface waves, Love waves generally travel faster than Rayleigh waves. Love waves (do not propagate through water) can affect surface water only insofar as the sides of lakes and ocean bays pushing water sideways like the sides of a vibrating tank, whereas Rayleigh waves, because of the vertical component of their motion can affect the bodies of water such as lakes.

Q.50) These forests are found in the western slope of the Western Ghats, hills of the northeastern region, and the Andaman and Nicobar Islands. They are found in warm and humid areas with annual precipitation of over 200 cm and mean annual temperature above 22 degrees Celsius. Species found in these forests include rosewood, mahogany, aini, and ebony.

Which of the following forests best fits the description given above?

- a) Tropical evergreen forests
- b) Tropical deciduous forests
- c) Montane forests
- d) Tropical thorn forests

Ans) a

Exp) Tropical Evergreen Forest is found in the western slope of the Western Ghats, hills of the northeastern region, and the Andaman and Nicobar Islands. They are found in warm and humid areas with annual precipitation of over 200 cm and mean annual temperature above 22°C. Tropical evergreen forests are well stratified, with layers closer to the ground and are covered with shrubs and creepers, with short structured trees followed by a tall variety of trees. In these forests, trees reach great heights up to 60 m or above. There is no definite time for trees to shed their leaves, flowering, and fruition. As such these forests appear green all year round. Species found in these forests include rosewood, mahogany, aini, ebony, etc.