



Fact Sheet Prep Series Part - 7

ANSWER KEY WITH EXPLANATION GEOGRAPHY & ENV. (PART - II)

1. Ans. b

Explan - The El Nino event is closely associated with the pressure changes in the Central Pacific and Australia. This change in pressure condition over Pacific is known as the southern oscillation. The combined phenomenon of southern oscillation and El Nino is known as ENSO. In the years when the ENSO is strong, large-scale variations in weather occur over the world. Warming and cooling of the Pacific Ocean is most important in terms of general atmospheric circulation. The warm water of the central Pacific Ocean slowly drifts towards South American coast and replaces the cool Peruvian current.

2. Ans. a

Explan - The latitudinal and longitudinal extent of the mainland is about 30°. Despite this fact the east west extent appears to be smaller than the north south extent. From Gujarat to Arunachal Pradesh there is a time lag of two hours. Hence, time along the Standard Meridian of India (82°30'E) passing through Mirzapur (in Uttar Pradesh) is taken as the standard time for the whole country. The latitudinal extent influences the duration of the day and night, as one moves from south to north.

3. Ans. c

Explan - **Renewable resources are those which get renewed or replenished quickly.** Some of these are unlimited and are not affected by human activities, such as solar and wind energy. **Non-renewable resources are those which have a limited stock.** Once the stocks are exhausted it may take thousands of years to be renewed or replenished. Since this period is much more than human life spans, such resources are considered non-renewable. Coal, petroleum and natural gas are some examples.

Non-renewable. Coal, petroleum and natural gas are some examples.

4. Ans. d

Related Information - Most of the metallic minerals in India occur in the peninsular plateau region in the old crystalline rocks. Petroleum reserves are located in the sedimentary basins of Assam, Gujarat and Mumbai High i.e. off-shore region in the Arabian Sea. New reserves have been located in the Krishna-Godavari and Kaveri basins. Most of the major mineral resources occur to the east of a line linking Mangaluru and Kanpur. Minerals are generally concentrated in three broad belts in India. There may be some sporadic occurrences here and there in isolated pockets. These belts are: **The North-Eastern Plateau Region: The South-Western Plateau Region and the North Western Region.**

5. Ans. d

Related Information - The crust forms only 0.5 per cent of the volume of the earth, 16 per cent consists of the mantle and 83 per cent makes the core. The radius of the earth is 6371 km.

6. Ans. a

Explan - It is very important to understand that this form of waste remediation uses no toxic chemicals, although it may use an organism that can be harmful under certain circumstances. A gross, but simple explanation of bioremediation is the use of maggots in wound care control. Wounds that have contamination can have maggots introduced to them. The maggots then eat the contamination, allowing the wound to heal correctly. That is a form of medical bioremediation but there are many other types that are used to control different waste contamination.



At sites filled with waste organic material, bacteria, fungi, protists, and other microorganisms keep on breaking down organic matter to decompose the waste. If such environment is filled with oil spill, some organisms would die while some would survive. Bioremediation works by providing these organisms with different materials like fertilizer, oxygen and other conditions to survive. This would help to break the organic pollutant at a faster rate. In other words, bioremediation can help to clean up oil spills.

7. Ans. b

Explan - Introduction of exotic species and not endemic species is one of the threats to Biodiversity. The introduction of exotic species are due to: (i) horticulture; (ii) agriculture; (iii) European colonisation and (iv) accidental transport. It is seen that some exotic species may kill or eat the native species thereby causing its extinction. Habitat fragmentation, Diseases, Shifting or Jhum cultivation, Poaching of wild life are some of the other factors that threaten to Biodiversity. Biodiversity is considered as a reservoir of resources to be used for the manufacture of food, medicine, industrial products, etc. But with an increased demand of rapid population growth, biodiversity is gradually depleting. A number of plants and animal species have already become extinct and many are endangered.

8. Ans. c

Explan - For the statements 1 and 2, reverse is true i.e. The historic Convention on Biological Diversity ('The Earth Summit') held in Rio de Janeiro in 1992, called upon all nations to take appropriate measures for conservation of biodiversity and sustainable utilisation of its benefits. In a follow-up, the World Summit on Sustainable Development held in 2002 in Johannesburg, South Africa, 190 countries pledged their commitment to achieve by 2010, a significant reduction in the current rate of biodiversity loss at global, regional and local levels.

9. Ans. c

Extra Information - The Protocol is called the Cartagena Protocol on Bio-safety after the city in Colombia where it was originally scheduled to be concluded and adopted. The final text of the Protocol was agreed upon in January 2000 in Montreal and it entered into force on 11 September 2003. States and regional economic integration organisations that join the Protocol and agree to be legally bound by its provisions are called "Parties" to the Protocol. An updated list of Parties to the Protocol can be found on the Cartagena Protocol website. Only states or regional economic integration organisations that are Parties to the Convention on Biological Diversity may become Parties to the Cartagena Protocol.

10. Ans. d

Extra Information - An international network of biosphere reserves, national parks and protected areas has been set up under the MAB Programme (UNESCO, 1974) with the objective to conserve the diversity and integrity of natural plant and animal communities and to safeguard the genetic diversity of species for continued evolution.

These reserves include representative and unique areas of the world's biomes and the selection of the reserves has been greatly facilitated by a thorough knowledge of the important biotic communities. Such protected reserves are intended to help meet scientific, economic, educational, cultural and recreational needs of present and future generations of mankind. Their chief importance lies in the maintenance of the gene pools of living species.

11. Ans. c

Extra Information - Block Mountains or Fault Block Mountains are massive in structure. They have very steep slopes. Generally, the topography of the Block Mountains is very smooth. They are usually tucked in the folded zones of some of the most primitive mountains. These folded zones have gradually lost their plastic properties. And as a result, mountain surfaces have been smoothed because of denudations. Tectonic actions continued and eroded these sections. After breaking, some of the sections rose to new ranges and horsts. The remaining sunk to form depressions and grabens. Due to the repeated actions of orogeny, they formed broad gently sloping folds. These folds were accompanied by faults. Lifted type Block Mountains has two steep sides exposing scarps on both the sides.

12. Ans. d

Explan - The Deccan plateau in India is one of the oldest plateaus. The Tibet plateau is the highest plateau in the world with a height of 4,000 to 6,000 metres above the mean sea level. The African plateau is famous for gold and diamond mining. In India huge reserves of iron, coal and manganese are found in the Chhotanagpur plateau.

13. Ans. c

Explan - On 21st March and September 23rd, direct rays of the sun fall on the equator. At this position, neither of the poles is tilted towards the sun; so, the whole earth experiences equal days and equal nights. This is called an equinox. Summer Solstice occurs on 21st June.

14. Ans. c

Explan - In general, the foci of the earthquake in the areas of mid-oceanic ridges are at shallow depths whereas along the Alpine- Himalayan belt as well as the rim of the Pacific, the earthquakes are deep-seated ones. The map of volcanoes also shows a similar pattern. The



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rim of the Pacific is also called rim of fire due to the existence of active volcanoes in this area.

15. Ans. b

Related Information - Jute: Jute was also known as the 'Golden Fibre'. It grows well on alluvial soil and requires high temperature, heavy rainfall and humid climate. This crop is grown in the tropical areas. India and Bangladesh are the leading producers of jute.

Coffee: Coffee requires warm and wet climate and well-drained loamy soil. Hill slopes are more suitable for growth of this crop. Brazil is the leading producer followed by Columbia and India.

The factors for the growth of **Cotton** in India are-

Large favorable fertile Ganga Delta region, plenty of cheap labor, introduction of insecticide to kill Boll Weevils, HYV seeds like Sujata, Bharati. Introduction of favorable Fertilizer are good for the production of cotton. Gujarat, Maharashtra, Punjab, Uttar Pradesh, Madhya Pradesh, Tamil Nadu, A.P. are the principle cotton producing states in India.

16. Ans. d

Related Information - The main problem with switching over to CNG is the difficulty of laying down pipelines to deliver CNG through distribution points/pumps and ensuring uninterrupted supply. Simultaneously parallel steps taken in Delhi for reducing vehicular pollution include phasing out of old vehicles, use of unleaded petrol, use of low-sulphur petrol and diesel, use of catalytic converters in vehicles, application of stringent pollution level norms for vehicles, etc. The Government of India through a new auto fuel policy has laid out a roadmap to cut down vehicular pollution in Indian cities. More stringent norms for fuels means steadily reducing the sulphur and aromatics content in petrol and diesel fuels.

17. Ans. a

Explan - Nutrient cycles are of two types: (a) gaseous and (b) sedimentary. The gaseous type of nutrient cycle (e.g., nitrogen, carbon cycle) exists in the atmosphere and for the sedimentary cycle (e.g., sulphur and phosphorus cycle), the reservoir is located in Earth's crust. Environmental factors, e.g., soil, moisture, pH, temperature etc., regulate the rate of release of nutrients into the atmosphere.

18. Ans. d

Related Information - The natural reservoir of phosphorus is rock, which contains phosphorus in the form of phosphates. When rocks are weathered, minute amounts of these phosphates dissolve in soil solution

and are absorbed by the roots of the plants. Herbivores and other animals obtain this element from plants. The waste products and the dead organisms are decomposed by phosphate-solubilising bacteria releasing phosphorus. Unlike carbon cycle, there is no respiratory release of phosphorus into atmosphere. The other two major and important differences between carbon and phosphorus cycle are firstly, atmospheric inputs of phosphorus through rainfall are much smaller than carbon inputs, and, secondly, gaseous exchanges of phosphorus between organism and environment are negligible.

19. Ans. b

Explan - One of the major effects of deforestation is enhanced carbon dioxide concentration in the atmosphere because trees that could hold a lot of carbon in their biomass are lost with deforestation. Deforestation also causes loss of biodiversity due to habitat destruction, disturbs hydrologic cycle, causes soil erosion, and may lead to desertification in extreme cases. Reforestation is the process of restoring a forest that once existed but was removed at some point of time in the past. Reforestation may occur naturally in a deforested area. However, we can speed it up by planting trees with due consideration to biodiversity that earlier existed in that area.

20. Ans. a

Explan - The rotation of our planet around the Sun and the tilt of its axis cause annual variations in the intensity and duration of temperature, resulting in distinct seasons. These variations together with annual variation in precipitation (remember precipitation includes both rain and snow) account for the formation of major biomes such as desert, rain forest and tundra. Regional and local variations within each biome lead to the formation of a wide variety of habitats. Major biomes of India are: (a) Tropical rain forest; (b) Deciduous forest; (c) Desert; (d) Sea coast.

21. Ans. c

Explan - The **kharif** season largely coincides with Southwest Monsoon under which the cultivation of tropical crops such as rice, cotton, jute, jowar, bajra and tur is possible. The **rabi** season begins with the onset of winter in October-November and ends in March-April. The low temperature conditions during this season facilitate the cultivation of temperate and subtropical crops such as wheat, gram mustard. Zaid is a short duration summer cropping season beginning after harvesting rabi crops. The cultivation of watermelon cucumbers, vegetables and fodder crops during this season is done on irrigated lands.



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22. Ans. b

Explan - These soils are mainly found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh, and the hilly areas of Orissa and Assam. After adopting appropriate soil conservation techniques particularly in the hilly areas of Karnataka, Kerala and Tamil Nadu, this soil is very useful for growing tea and coffee.

23. Ans. d

Extra Information - A pedologist who studies soils defines soil as a collection of natural bodies on the earth's surface containing living and/or dead matter and supporting or capable of supporting plants. Soil is a dynamic medium in which many chemical, physical and biological activities go on constantly. Soil is a result of decay; it is also the medium for growth. It is a changing and developing body. It has many characteristics that fluctuate with the seasons.

24. Ans. d

Explan - In India Rajasthan and Jharkhand have large deposits of Uranium. **Nuclear Energy** emits large amount of energy. **Disadvantages**: - Generates radioactive of energy wastes and are expensive. Monazite is the chief source of thorium in the world. Though it is a constituent of some granites and pegmatites, such sources are not economically workable. Monazite is concentrated by weathering into economically workable deposits in beach sands in the coastal tracts of Australia, Brazil, Ceylon, Malaysia and India. India possesses the largest deposits of monazite in the world. Recent indications are that in the near future, thorium would emerge as a fission fuel of greater potential than thorium.

25. Ans. c

Explan - In India, the mangrove forests spread over 6,740 sq. Km which is 7 per cent of the world's mangrove forests. They are highly developed in the Andaman and Nicobar Islands and the Sunderbans of West Bengal. Mangroves grow along the coasts in the salt marshes, tidal creeks, mud flats and estuaries. They consist of a number of salt-tolerant species of plants. Crisscrossed by creeks of stagnant water and tidal flows, these forests give shelter to a wide variety of birds.

26. Ans. a

Related Information - Bio-magnification, also known as bio-amplification or biological magnification, is the increasing concentration of a substance, such as a toxic chemical, in the tissues of organisms at successively higher levels in a food chain. This increase can occur as a result of: **Persistence** – where the substance cannot be broken down by environmental processes.

Food chain energetics – where the substance concentration increases progressively as it moves up a food chain. **Low or non-existent rate of internal**

degradation or excretion of the substance – often due to water-insolubility. A few toxic substances, often present in industrial waste waters, can undergo biological magnification (Biomagnification) in the aquatic food chain. This phenomenon is well-known for mercury and DDT. High concentrations of DDT disturb calcium metabolism in birds, which causes thinning of eggshell and their premature breaking, eventually causing decline in bird populations.

27. Ans. b

Explan - A nekton is a group of water or marine organisms that travel together freely. They tend to move without the help of the current. Generally speaking, they are vertebrates, or animals that have bones or cartilage, are powerful swimmers, and are larger than microbes. The organisms in a nekton can be compared to the way plankton move; however, the major distinction is that creatures in nektons can move independently. Nekton organisms sometimes, when small, are similar to plankton and transition into nektons as they grow.

Individual organisms that form nektons are generally high on the food chain, ecologically, and some of their main predators are humans. Think of some of the most popular marine life that humans eat - crabs, shrimp and tuna, for instance. These are all examples of organisms that form nektons. A general rule of thumb is that many organisms that humans eat that come from marine or lake ecosystems form nektons.

28. Ans. c

Explan - 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. Two sites - Chilika Lake (Orissa) and Keoladeo National Park (Bharatpur) are protected as water-fowl habitats under the Convention of Wetlands of International Importance (Ramsar Convention). The Convention on Wetlands of International Importance, called the Ramsar Convention, is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources.

The Convention was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. Since then, almost 90% of UN member states, from all the world's geographic regions, have acceded to become "Contracting Parties".

29. Ans. a

Explan - A biodiversity hotspot is an area with unusual concentration of species, many of which are endemic. It is marked by serious threat to its biodiversity by humans. The concept was given in 1988 by Norman Myers. In South Asia: Eastern Himalaya, Nepal; Indo-Burma, India and Myanmar; Western Ghats, India; Sri Lanka are biodiversity hotspot region.



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30. Ans. c

Explan - The IUCN Red List (2004) documents the extinction of 784 species (including 338 vertebrates, 359 invertebrates and 87 plants) in the last 500 years. Some examples of recent extinctions include the dodo (Mauritius), quagga (Africa), thylacine (Australia), Steller's Sea Cow (Russia) and three subspecies (Bali, Javan, Caspian) of tiger. The last twenty years alone have witnessed the disappearance of 27 species.

31. Ans. d

Related Information - The degree of hotness and coldness of the air is known as temperature. The temperature of the atmosphere changes not only between day and night but also from season to season. Summers are hotter than winters. An important factor that influences the distribution of temperature is **insolation**. **Insolation** is the incoming solar energy intercepted by the earth. The amount of insolation decreases from the equator towards the poles. Therefore, the temperature decreases in the same manner.

32. Ans. a

Explan - The moraine in the centre of the glacial valley flanked by lateral moraines is called **medial moraine**. The lateral moraines may join a terminal moraine forming a horse-shoe shaped ridge. Many valley glaciers retreating rapidly leave an irregular sheet of till over their valley floors. Such **deposits varying greatly in thickness and in surface topography are called ground moraines**.

33. Ans. c

Related Information - Bhabar: After descending from the mountains, the rivers deposit pebbles in a narrow belt. The width of this belt is about 8 to 16 kms. It lies parallel to the Shiwaliks. Bhabar is the gently-sloping coarse alluvial zone below the Siwalik Hills (outermost foothills of Himalayas) where streams disappear into permeable sediments. The underground water level is deep in this region.

Bhangar: Bhangar is the largest part of the northern plain and is composed of the oldest alluvial soil. They lie above the flood plains. They resemble terraces. The soil of this region is locally known as kankar and is composed of calcareous deposits.

Khadar: The floodplains formed by younger alluvium are called Khadar. The soil in this region is renewed every year and is highly fertile. This region is very suitable for intensive agricultural activities.

34. Ans. d

Related Information - This **coarse cereal occupies about 5.2 per cent of total cropped area in the country**. Being a rainfed crop, the yield level of this crop is low in

Rajasthan and fluctuates a lot from year to year. Yield of this crop has increased during recent years in Haryana and Gujarat due to introduction of drought resistant varieties and expansion of irrigation under it.

35. Ans. c

Explan - Exfoliation is the characteristic feature of physical weathering process. Weathering is defined as mechanical disintegration and chemical decomposition of rocks through the actions of various elements of weather and climate. Decomposition of rocks and minerals by various chemical processes is called chemical weathering. It is the most important process for soil formation. Chemical weathering takes place mainly at the surface of rocks and minerals with disappearance of certain minerals and the formation of secondary products (new materials). This is called chemical transformation.

36. Ans. c

Explan - National Green Corps is a programme to sensitize school children about environment, its problems and conservation. Started in the year 2001, the programme is operational across the country through school eco-clubs established for this purpose.

Objectives

to impart knowledge to children about their immediate environment, interactions within and problems therein through hands-on experience; to develop skills of observation, experimentation, survey, recording, analysis, reasoning needed for conserving environment through activities; to inculcate proper attitudes with regard to environment and its conservation through action-based programmes; to sensitize children to issues related to environment and development through field visits and demonstrations; to promote logical and independent thinking among children to be able to select right choices by instilling in them the spirit of scientific inquiry; to involve them in action projects related to environmental conservation. The programme also proposes to sensitize the society through 'school to society' interactions.

37. Ans. a

Explan - The Rotterdam Convention is an international treaty designed to facilitate informed decision-making by countries with regard to trade in hazardous chemicals. It establishes a list of covered chemicals and requires parties seeking to export a chemical on that list to first establish that the intended importing country has consented to the import. It also requires that a party seeking to export a chemical that is not listed under the Convention, but is subject to a ban or severe restriction in its own territory, must provide notice to the importing country of the proposed export. The Convention entered into force on February 24, 2004.

38. Ans. c



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Extra Information - Decomposition is largely an oxygen-requiring process. The rate of decomposition is controlled by chemical composition of detritus and climatic factors. In a particular climatic condition, decomposition rate is slower if detritus is rich in lignin and chitin, and quicker, if detritus is rich in nitrogen and water-soluble substances like sugars. Temperature and soil moisture are the most important climatic factors that regulate decomposition through their effects on the activities of soil microbes. The important steps in the process of decomposition are fragmentation, leaching, catabolism, humification and mineralisation. Detritivores (e.g., earthworm) break down detritus into smaller particles. This process is called fragmentation. By the process of leaching, water soluble inorganic nutrients go down into the soil horizon and get precipitated as unavailable salts. Bacterial and fungal enzymes degrade detritus into simpler inorganic substances. This process is called as catabolism. It is important to note that all the above steps in decomposition operate simultaneously on the detritus.

39. Ans. b

Explan - A few organisms can tolerate and thrive in a wide range of temperatures (they are called eurythermal), but, a vast majority of them are restricted to a narrow range of temperatures (such organisms are called stenothermal). Eurythermal animals are able to survive more than that of stenothermal animals because eurythermal animals have higher tendency to survive in increased global temperature and stenothermal animals are restricted to only a narrow range of temperatures. The levels of thermal tolerance of different species determine to a large extent their geographical distribution.

40. Ans. c

Extra Information - Air pollution from cars and trucks is split into primary and secondary pollution. Primary pollution is emitted directly into the atmosphere; secondary pollution results from chemical reactions between pollutants in the atmosphere. The following are the major pollutants from motor vehicles:

Particulate matter (PM): These particles of soot and metals give smog its murky color. Fine particles - less than one-tenth the diameter of a human hair - pose the most serious threat to human health, as they can penetrate deep into lungs. PM is a direct (primary) pollution and a secondary pollution from hydrocarbons, nitrogen oxides, and sulfur dioxides. Diesel exhaust is a major contributor to PM pollution.

Hydrocarbons (HC): These pollutants react with nitrogen oxides in the presence of sunlight to form ground level ozone, a primary ingredient in smog. Though beneficial in the upper atmosphere, at the ground level

this gas irritates the respiratory system, causing coughing, choking, and reduced lung capacity.

Nitrogen oxides (NOx): These pollutants cause lung irritation and weaken the body's defenses against respiratory infections such as pneumonia and influenza. In addition, they assist in the formation of ground level ozone and particulate matter.

Carbon monoxide (CO): This odorless, colorless, and poisonous gas is formed by the combustion of fossil fuels such as gasoline and is emitted primarily from cars and trucks. When inhaled, CO blocks oxygen from the brain, heart, and other vital organs. Fetuses, newborn children, and people with chronic illnesses are especially susceptible to the effects of CO.

Sulfur dioxide (SO₂): Power plants and motor vehicles create this pollutant by burning sulfur-containing fuels, especially diesel. Sulfur dioxide can react in the atmosphere to form fine particles and poses the largest health risk to young children and asthmatics.

Hazardous air pollutants (toxics): These chemical compounds have been linked to birth defects, cancer, and other serious illnesses. The Environmental Protection Agency estimates that the air toxics emitted from cars and trucks - which include Benzene, acetaldehyde, and 1, 3-butadiene - account for half of all cancers caused by air pollution.

Greenhouse Gases: Motor vehicles also emit pollutants, such as carbon dioxide, that contribute to global climate change. In fact, cars and trucks account for over one-fifth of the United States' total global warming pollution; transportation, which includes freight, trains, and airplanes, accounts for around thirty percent of all heat-trapping gas emissions.

41. Ans. c

Explan - The Manjira is a tributary of the River Godavari. The tributaries of rivers Ganga and Brahmaputra together form the Ganga-Brahmaputra basin in the Indian subcontinent. The basin lies in the sub-tropical region that is situated between 10°N to 30°N latitudes. The tributaries of the River Ganga like the Ghaghra, the Son, the Chambal, the Gandak, the Kosi and the tributaries of Brahmaputra drain it.

42. Ans. c

Explan - In the Ganga and Brahmaputra plain tropical deciduous trees grow, along with teak, sal and peepal. Thick bamboo groves are common in the Brahmaputra plain. The delta area is covered with the mangrove forests. In parts of Uttaranchal, Sikkim and Arunachal Pradesh, coniferous trees like pine, deodar and fir can be seen because the climate is cool and the slopes are steep. There is a variety of wildlife in the basin. Elephants,

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tigers, deer and monkeys are common. The one-horned rhinoceros is found in the Brahmaputra plain.

43. Ans. c

Related Information - In the fresh waters of River Ganga and River Brahmaputra, a variety of dolphin locally called *Susu* (also called blind dolphin) is found. The presence of *Susu* is an indication of the health of the river. The Ganges River dolphin or *Susu*, lives in one of the most densely populated regions of the world. One of the main threats to the species is loss of habitat due in large part to the creation of dams and irrigation projects.

44. Ans. d

Explain - Ecology is a subject which studies the interactions among organisms and between the organism and its physical (abiotic) environment. Ecology at the organismic level is essentially physiological ecology which tries to understand how different organisms are adapted to their environments in terms of not only survival but also reproduction.

45. Ans. a

Explain - Presence of large amounts of nutrients in waters also causes excessive growth of planktonic (free-floating) algae, called an algal bloom which imparts a distinct colour to the water bodies. Algal blooms cause deterioration of the water quality and fish mortality. Some bloom-forming algae are extremely toxic to human beings and animals.

Micro-organisms involved in biodegradation of organic matter in the receiving water body consume a lot of oxygen, and as a result there is a sharp decline in dissolved oxygen downstream from the point of sewage discharge. This causes mortality of fish and other aquatic creatures.

46. Ans. a

Explain - Species found in these forests include rosewood, mahogany, aini, ebony, etc. These forests are found in the western slope of the Western Ghats, hills of the north-eastern region and the Andaman and Nicobar Islands. They are found in warm and humid areas with an annual precipitation of over 200 cm and mean annual temperature above 22°C. There is no definite time for trees to shed their leaves, flowering and fruition. As such these forests appear green all the year round. Semi-evergreen forests are found in the less rainy parts of these regions. Such forests have a mixture of evergreen and moist deciduous trees. The under growing climbers provide an evergreen character to these forests. Main species are white cedar, hollock and kail.

47. Ans. d

Related Information - Ecotones occur at edges and physical boundaries, where fresh water meets salt water and water meets land, where tides roll up and down coasts, where the fir trees of taiga forests give way to the lichen and grass of tundra and woodlands become pastures. It is zone of junction between two or more diverse ecosystems.

Burton Edward Livingston¹ and Frederic Clements² described the ecotone concept in the first decade of the twentieth century, when ecology was coalescing as a field of study.

48. Ans. c

Explain - All animals depend on plants (directly or indirectly) for their food needs. They are hence called consumers and also heterotrophs. Obviously the primary consumers will be herbivores. Some common herbivores are insects, birds and mammals in terrestrial ecosystem and molluscs in aquatic ecosystem. The consumers that feed on these herbivores are carnivores, or more correctly primary carnivores (though secondary consumers). Those animals that depend on the primary carnivores for food are labelled secondary carnivores.

49. Ans. c

Explain - The gradual and fairly predictable change in the species composition of a given area is called ecological succession. During succession some species colonise an area and their populations become more numerous, whereas populations of other species decline and even disappear. The entire sequence of communities that successively change in a given area are called sere(s). The individual transitional communities are termed seral stages or seral communities.

50. Ans. d

Related Information - A pond is a shallow, simple, self-sustainable water body that exhibits all basic components of an ecosystem. Abiotic components in pond: water and the rich soil deposit at the bottom. Climatic conditions: The solar input, the cycle of temperature, day-length etc. Autotrophic components: phytoplankton, some algae and the floating, submerged and marginal plants. Consumers (heterotrophs): zooplankton, free swimming and bottom dwelling forms. Decomposers: fungi, bacteria and flagellates.

Pond performs all the functions of an ecosystem such as conversion of inorganic into organic material with the help of the radiant energy of the sun by the autotrophs. Consumption of the autotrophs by heterotrophs. Decomposition and mineralization of the dead matter to release them back for reuse by the autotrophs.

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