
Natural Resources

Multiple Choice Questions

1. **The atmosphere of the earth is heated by radiations which are mainly**

- (a) radiated by the sun
- (b) re-radiated by land
- (c) re-radiated by water
- (d) re-radiated by land and water

Ans. (d) re-radiated by land and water

Explanation: The heat from the sun reaches the earth and heats up the land and water. After that, heat from land and water is re-radiated to heat up the atmosphere.

2. **If there were no atmosphere around the earth, the temperature of the earth will**

- (a) increase
- (b) go on decreasing
- (c) increase during day and decrease during night
- (d) be unaffected

Ans. (c) increase during day and decrease during night

Explanation: This is because of the atmosphere that the earth is saved from becoming too hot during day time. This happens because a significant amount of heat is prevented from reaching the earth's surface by the atmosphere. Moreover, the atmosphere prevents the heat from escaping during night. Thus, an ambient temperature is maintained on the earth throughout the 24-hour period.

3. **What would happen, if all the oxygen present in the environment is converted to ozone?**

- (a) We will be protected more
- (b) It will become poisonous and kill living forms
- (c) Ozone is not stable, hence it will be toxic
- (d) It will help harmful sun radiations to reach earth and damage many life forms.

Ans. (b) It will become poisonous and kill living forms

Explanation: Living beings need oxygen for respiration. Lack of oxygen will kill all living beings.

4. **One of the following factors does not lead to soil formation in nature**

- (a) the sun
- (b) water
- (c) wind
- (d) polythene bags

Ans. (d) polythene bags

Explanation: Polythene bags end up contaminating the soil and turning the soil barren.

5. **The two forms of oxygen found in the atmosphere are**

- (a) water and ozone
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- (b) water and oxygen
 - (c) ozone and oxygen
 - (d) water and carbon-dioxide

Ans. (c) ozone and oxygen

Explanation: Ozone is an allotrope of oxygen.

6. The process of nitrogen-fixation by bacteria does not take place in the presence of

- (a) molecular form of hydrogen
- (b) elemental form of oxygen
- (c) water
- (d) elemental form of nitrogen

Ans. (b) elemental form of oxygen

7. Rainfall patterns depend on

- (a) the underground water table
- (b) the number of water bodies in an area
- (c) the density pattern of human population in an area
- (d) the prevailing season in an area

Ans. (b) the number of water bodies in an area

Explanation: Water bodies provide water for evaporation. Water vapour, formed after evaporation condense to cause rainfall. Lack of water bodies in an area would reduce humidity in air and thus will adversely affect the rainfall.

8. Among the given options, which one is not correct for the use of large amount of fertilisers and pesticides?

- (a) They are eco-friendly
- (b) They turn the fields barren after some time
- (c) They adversely affect the useful component from the soil
- (d) They destroy the soil fertility

Ans. (a) They are eco-friendly

Explanation: Adverse effects mentioned in other options make the fertilizers and pesticides non-friendly to the ecosystem.

9. The nitrogen molecules present in air can be converted into nitrates and nitrites by

- (a) a biological process of nitrogen fixing bacteria present in soil
- (b) a biological process of carbon fixing factor present in soil
- (c) any of the industries manufacturing nitrogenous compounds
- (d) the plants used as cereal crops in field

Ans. (a) a biological process of nitrogen fixing bacteria present in soil

Explanation: Cereal crops themselves cannot fix nitrogen. They harbour nitrogen fixing bacteria in their root nodules. So, option (d) is incorrect. Factories cannot utilize nitrogen in the air to produce nitrogenous compounds; they use petrochemicals for this purpose. Hence, option (c) is incorrect. Option (b) talks about carbon fixation and hence is incorrect.

10. One of the following processes is not a step involved in the water-cycle operating in nature

- (a) evaporation
- (b) transpiration
- (c) precipitation
- (d) photosynthesis

Ans. (d) photosynthesis

Explanation: Photosynthesis is involved in carbon cycle and not in water cycle.

11. The term “water-pollution” can be defined in several ways. Which of the following statements does not give the correct definition?

- (a) The addition of undesirable substances to water-bodies
- (b) The removal of desirable substances from water-bodies
- (c) A change in pressure of the water bodies
- (d) A change in temperature of the water bodies

Ans. (c) A change in pressure of the water bodies

Explanation: A change in pressure of the water bodies can happen because of physical causes and it does not result in contamination of water.

12. Which of the following is not a greenhouse gas?

- (a) Methane
- (b) Carbon dioxide
- (c) Carbon monoxide
- (d) Ammonia

Ans. (d) Ammonia

13. Which step is not involved in the carbon-cycle?

- (a) Photosynthesis
- (b) Transpiration
- (c) Respiration
- (d) Burning of fossil fuels

Ans. (b) Transpiration

Explanation: Transpiration is involved in water cycle and not in carbon cycle.

14. ‘Ozone-hole’ means

- (a) a large sized hole in the ozone layer
- (b) thinning of the ozone layer
- (c) small holes scattered in the ozone layer
- (d) thickening of ozone in the ozone layer

Ans. (b) thinning of the ozone layer

Explanation: Mention of the term ‘hole’ rules out options ‘a’ and ‘c’. Thickening is similar to strengthening and hence options ‘d’ is ruled out.

15. Ozone-layer is getting depleted because of

- (a) excessive use of automobiles
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- (b) excessive formation of industrial units
 - (c) excessive use of man-made compounds containing both fluorine and chlorine
 - (d) excessive deforestation.

Ans. (c) excessive use of man-made compounds containing both fluorine and chlorine

Explanation: Compounds which contains both fluorine and chlorine are called chlorofluorocarbons (CFCs). Chlorine and fluorine react with ozone to convert it into oxygen and thus they result in depletion of ozone layer.

16. Which of the following is a recently originated problem of environment?

- (a) Ozone layer depletion
- (b) Green house effect
- (c) Global warming
- (d) All of the above

Ans. (d) All of the above

Explanation: All the problems mentioned here have originated after the industrial revolution.

17. When we breathe in air, nitrogen also goes inside along with oxygen. What is the fate of this nitrogen?

- (a) It moves along with oxygen into the cells
- (b) It comes out with the CO₂ during exhalation
- (c) It is absorbed only by the nasal cells
- (d) Nitrogen concentration is already more in the cells so it is not at all absorbed.

Ans. (b) It comes out with the CO₂ during exhalation

Explanation: Nitrogen is the most abundant gas in the air and hence it goes inside our body during inhalation. But nitrogen is not utilized by the body and comes out during exhalation.

18. Top-soil contains the following

- (a) Humus and living organisms only
- (b) Humus and soil particles only
- (c) Humus, living organisms and plants
- (d) Humus, living organisms and soil particles.

Ans. (d) Humus, living organisms and soil particles.

19. Choose the correct sequences

- (a) CO₂ in atmosphere → decomposers → organic carbon in animals → organic carbon in plants
 - (b) CO₂ in atmosphere → organic carbon in plants → organic carbon in animals → inorganic carbon in soil
 - (c) Inorganic carbonates in water → organic carbon in plants → organic carbon in animals → scavengers
 - (d) Organic carbon in animals → decomposers → CO₂ in atmosphere → organic carbon in plants
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Ans. (b) CO₂ in atmosphere → organic carbon in plants → organic carbon in animals → inorganic carbon in soil

Explanation: Carbon dioxide from the atmosphere is utilized by green plants during photosynthesis. Thus, organic compounds are made in plants. When an animal takes food, organic compounds from plants go to the body of animal (directly or indirectly). Once an animal or a plant dies; decomposition of the dead remains result in formation of inorganic carbon in soil.

- 20. Major source of mineral in soil is the**
(a) parent rock from which soil is formed
(b) plants
(c) animals
(d) bacteria

Ans. (a) parent rock from which soil is formed

- 21. Total earth's surface covered by water is**
(a) 75%
(b) 60%
(c) 85%
(d) 50%

Ans. (a) 75%

- 22. Biotic component of biosphere is not constituted by**
(a) producers
(b) consumers
(c) decomposer
(d) air

Ans. (d) air

Explanation: Biotic components comprise of living beings. Air is a non-living thing and hence cannot be a part of biotic components.

- 23. An increase in carbon dioxide content in the atmosphere would not cause**
(a) more heat to be retained by the environment
(b) increase in photosynthesis in plants
(c) global warming
(d) abundance of desert plants

Ans. (d) abundance of desert plants

Explanation: Desert does not have suitable condition for abundant growth of plants. A part from carbon dioxide; a plant also needs oxygen, water and minerals for proper growth and development. But water is a scarce resource in deserts.

- 24. Oxygen is returned to the atmosphere mainly by**
(a) burning of fossil fuel
(b) respiration
(c) photosynthesis
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(d) fungi

Ans. (c) photosynthesis

Explanation: Agents in other options return carbon dioxide to the atmosphere.

25. Low visibility during cold weather is due to

(a) formation of fossil fuel

(b) unburnt carbon particles or hydrocarbons suspended in air

(c) lack of adequate power supply

(d) none of these

Ans. (b) unburnt carbon particles or hydrocarbons suspended in air

Explanation: Unburnt carbon particles and hydrocarbons suspended in air create smog. Smog result in low visibility.

26. Growth of Lichens on barren rocks is followed by the growth of

(a) moss

(b) ferns

(c) gymnosperms

(d) algae

Ans. (a) moss

Explanation: Lichens secrete certain enzymes which break the rocks and make it suitable for growth of masses. Mosses further pave the way for formation of soil and for growth of higher plants.

27. Marked temperature changes in aquatic environment can affect

(a) breeding of animals

(b) more growth of aquatic plants

(c) process of digestion in animals

(d) availability of nutrients.

Ans. (a) breeding of animals

Explanation: Temperature change may hamper the growth of aquatic plants. Availability of nutrients in water does not depend on temperature but on availability of mineral in the substratum. Temperature change in water may affect digestion in aquatic animals but it will have no effect on digestion in land animals. Thus, other options can be ruled out.

28. Soil erosion can be prevented by

(a) raising forests

(b) deforestation

(c) excessive use of fertilizer

(d) overgrazing by animals

Ans. (a) raising forests

Explanation: Agents in other options will increase soil erosion.

29. What happens when rain falls on soil without vegetational cover?

(a) Rain water percolates in soil efficiently

(b) Rain water causes loss of surface soil

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- (c) Rain water leads to fertility of the soil
 - (d) Rain water does not cause any change in soil

Ans. (b) Rain water causes loss of surface soil

Explanation: plants hold top soil with their roots and thus prevent top soil from getting washed away by rain.

30. Oxygen is harmful for

- (a) ferns
- (b) nitrogen fixing bacteria
- (c) chara
- (d) mango tree

Ans. (b) nitrogen fixing bacteria

Natural Resources

Short Answer Questions

31. Rivers from land, add minerals to sea water. Discuss how?

Ans. Water is capable of dissolving a large number of substances. As water flows over the rocks containing soluble minerals, some of them get dissolved in the water. Thus, rivers carry many nutrients from land to the sea.

32. How can we prevent the loss of top soil?

Ans. Loss of top soil can be prevented by
(i) increasing the vegetational cover
(ii) checking the falling of trees
(iii) by preventing excessive grazing by animals

33. How is the life of organisms living in water affected when water gets polluted?

Ans. Addition of undesirable chemicals like pesticides, fertilizers, industrial waste and domestic wastes not only kill the organisms, they also cause diseases to the aquatic organisms. Besides, the requirement of oxygen by aquatic organisms is also increased. There is a reduction in the dissolved oxygen in water which adversely affects the aquatic organisms.

34. During summer, if you go near the lake, you feel relief from the heat, why?

Ans. The water from surface of a lake keeps on evaporating. This creates a cooling effect in the surrounding. Due to this, when we go near a lake we feel relief from heat.

35. In coastal area, wind current moves from the sea towards the land during day; but during night it moves from land to the sea. Discuss the reason.

Ans. Air above the land gets heated quickly during day and starts rising. This creates a region of low pressure as a result air over sea rushes into this area of low pressure. This movement of air from one region to the other creates winds. During night, as water cools down slowly, the air above water is warmer than the air on land. So, air moves from land to sea creating winds.

36. Following are a few organisms

(a) lichen (b) mosses (c) mango tree (d) cactus

Which among the above can grow on stones; and also, help in formation of soil? Write the mode of their action for making soil.

Ans. Lichens and Mosses (a) and (b). Lichens and mosses release substances which break down the stones resulting in the formation of soil.

37. Soil formation is done by both abiotic and biotic factors. List the names of these factors by classifying them as abiotic and biotic?

Ans. Abiotic factors making soil— sun, water, wind
Biotic factors— lichens, mosses and trees

38. All the living organisms are basically made up of C, N, S, P, H and O. How do they enter the living forms? Discuss.

Ans. C, N, S, P, H and O are the basic components of various biomolecules. Living beings are made up of numerous biomolecules. Most of these components come to the living world via plants. Carbon comes through photosynthesis. Nitrogen is fixed in soil by nitrogen-fixing bacteria so that plants can absorb nitrogenous compounds. Sulphur and phosphorus are available as minerals in soil and are absorbed by plants; along with water. Hydrogen and oxygen enter in the plants when they absorb water. Animals also obtain hydrogen and oxygen when they drink water. Oxygen is also taken up by living beings during inhalation. Finally, these elements are taken up by animals when they take food either directly or indirectly from plants.

39. Why does the percentage of gases like oxygen, nitrogen and carbon dioxide remain almost the same in the atmosphere?

Ans. These elements are continuously utilized by living beings. But these elements undergo a cyclic process which ensures that they are returned to the atmosphere through various processes. This cyclic process of utilizing various elements and returning them to the atmosphere is called the biogeochemical cycle. Due to this, the percentage of oxygen, nitrogen and carbon dioxide remains almost the same in the atmosphere.

40. Why does the moon have very cold and very hot temperature variations e.g. from -190°C to 110°C even though it is at the same distance from the sun as the earth is?

Ans. The moon does not have an atmosphere. Due to this, there is no mechanism to prevent overheating of the surface during daytime; unlike what happens on the earth. Moreover, lack of atmosphere allows all the heat to escape during night. Due to this there are wide variations in temperature on the moon.

41. Why do people love to fly kites near the seashore?

Ans. In coastal areas, sea breeze blows during daytime. The sea breeze has ideal speed for kite flying. Hence, people love to fly kites near the seashore.

42. Why does the Mathura refinery pose problems to the Taj Mahal?

Ans. Mathura refinery releases toxic gases (like oxides of sulphur) which causes acid rain and hence corrosion of the marbles of Taj Mahal.

43. Why do not lichens occur in Delhi whereas they commonly grow in Manali or Darjeeling?

Ans. It is a bio-indicator and sensitive to SO_2 pollution from automobiles. Delhi has maximum number of automobiles, hence has a highly polluted environment.

44. Why does water need conservation even though large oceans surround the land masses?

Ans. Marine water is not useful for human and plant life directly. Uneven distribution of limited fresh water resources need conservation to cater to the demands.

45. There is mass mortality of fishes in a pond. What may be the reasons?

Ans. (i) Thermal pollution
(ii) Addition of poisonous (mercury) compounds in water
(iii) Due to blockage of gills with any pollutant.

46. Lichens are called pioneer colonisers of bare rock. How can they help in formation of soil?

Ans. Lichens release chemical substances to break the rocks into smaller particles and hence make soil.

47. "Soil is formed by water." If you agree to this statement then give reasons.

Ans. Water helps in formation of soil in following ways
(i) Water causes 'wear off' of rocks over a long period of time.
(ii) It also causes the rocks to rub against other rocks creating small particles which are taken away downstream and deposited as soil.
(iii) Water expands on freezing in crevices of rocks and cracks rocks into smaller pieces.

48. Fertile soil has lots of humus. Why?

Ans. Fertile soils are rich in organisms that decomposes dead organic matter forming humus. Humus gives minerals, absorbs water and makes soil porous.

49. Why step farming is common in hills?

Ans. Farms in hills have steep slopes. There is always a risk of top soil being washed away by rainwater because of steep slope. Steps are made to prevent soil erosion. Hence, step farming is common in hills.

50. Why are root nodules useful for the plants?

Ans. In root nodules nitrogen fixing Rhizobium bacteria are present which increases the soil fertility.

Natural Resources

Long Answer Questions

51. How do fossil fuels cause air pollution?

Ans. The fossil fuels like coal and petroleum contain small amounts of nitrogen and sulphur. When fossil fuels are burnt, it produces oxides of nitrogen and sulphur. These gases cause inhalation problems and in presence of rain forms acid rain. Burning of fossil fuels also increase the amount of suspended particles in air that reduce the visibility.

52. What are the causes of water pollution? Discuss how you can contribute in reducing water pollution.

Ans. Water pollution can be caused by addition of

(i) undesirable substances like fertilizers and pesticides or any poisonous substances.

(ii) sewage directly entering a water body.

(iii) hot water from the power plant that increases the temperature and reduces the dissolved oxygen in water thus killing the aquatic organisms.

(iv) industrial effluents or radioactive substances in water body. We can take following measures to check water pollution

(i) The sewer lines should not be directly connected to the water body.

(ii) We should not throw our garbages or domestic waste in the water body.

(iii) Prevent dumping of toxic compounds in the water bodies.

(iv) Washing of clothes should be avoided near water bodies as it adds lot of detergents to it.

(v) Plant trees near the banks of the river to check soil erosion otherwise erosion leads to siltation of water body.

53. A motor car, with its glass totally closed, is parked directly under the sun. The inside temperature of the car rises very high. Explain why?

Ans. Infra-red radiations in sunlight pass through the glass and heat the interior of the car. The radiation emitted by upholstery and other inner parts of the car cannot pass out of the glass, so the heat trapped inside raises the temperature of the interior. This is because glass is transparent to infrared radiation from the sun having smaller wavelength than that emitted by the interior of the car which are of longer wavelength to which the glass is opaque.

54. Justify "Dust is a pollutant"?

Ans. Dust remains present in air as suspended particles can cause allergy and other respiratory diseases. It also affects plant growth, by covering stomata on leaf surface. It acts as the carrier of toxic compounds like heavy metals.

55. Explain the role of the Sun in the formation of soil.

Ans. The rocks are heated by the sun; they contract during night but not at same rate — resulting in cracks in rocks and ultimately to smaller particles.

56. Carbon dioxide is necessary for plants. Why do we consider it as a pollutant?

Ans. Increasing concentration (more than normal) of CO₂ is harmful and considered as a pollutant. Higher concentrations of CO₂ is one of the causes of greenhouse effect/global warming.
