Chapter - 14
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

Soln:

Answer is (d) re-radiated by land and water

Explanation:

Heat from sun reaches earth and water through sunrays. This heat is reradiated by earth and water to convert atmosphere hot.

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

Soln:

Answer is (c) increase during day and decrease during night

Explanation:

Because atmosphere prevent a lot of heat from reaching earth's surface. Atmosphere also prevent escape of heat in the night. Hence atmosphere is responsible for maintain an ambient temperature.

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.

Soln:

Answer is (b) It will become poisonous and kill living forms

Explanation:

Most of the organisms live on earth required oxygen for their living If oxygen convert to ozone living beings will get killed.

4. One of the following factors does not lead to soil formation in nature
(a) the sun
(b) water
(c) wind
(d) polythene bags

Soln:

Answer is (d) polythene bags

Explanation:

Polythene bags pollutes the soil and converts the soil infertile.

5. The two forms of oxygen found in the atmosphere are
(a) water and ozone
(b) water and oxygen
(c) ozone and oxygen
(d) water and carbon-dioxide

Soln:

Answer is (c) ozone and oxygen

Explanation:

Ozone is an allotropic form 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

Soln:

(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

Soln:
Answer is (b) the number of water bodies in an area

Explanation:

Water bodies provide water for evaporation which are converted into clouds and bring rainfall. Lack of water bodies also reduce the humidity which will affect the rainfall pattern.

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 adversally affect the useful component from the soil
(d) They destroy the soil fertility

Soln:

Answer is (a) They are eco-friendly

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

Soln:

Answer is (a) a biological process of nitrogen fixing bacteria present in soil

Explanation:

Cereal plants cannot fix the nitrogen on their own. They comprise of bacteria in their root nodules which will convert nitrates to nitrites. This process is called as nitrogen fixation.

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

Soln:

Answer is (d) photosynthesis

Explanation:

Photosynthesis is a part of carbon cycle but not 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

Soln:

Answer is (c) A change in pressure of the water bodies

Explanation:

Physical causes lead to change in pressure on water bodies. Hence change in water pressure will not affect pollution of water.

12. Which of the following is not a green house gas?
(a) Methane
(b) Carbon dioxide
(c) Carbon monoxide
(d) Ammonia

Soln:

Answer is (d) Ammonia

13.Which step is not involved in the carbon-cycle?
(a) Photosynthesis
(b) Transpiration
(c) Respiration
(d) Burning of fossil fuels

Soln:

Answer is (b) Transpiration

Explanation:

Transpiration is the process of exhaling water from trees. Transpiration is a part of water 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

Soln:

Answer is (b) thinning of the ozone layer

15. Ozone-layer is getting depleted because of
(a) excessive use of automobiles
(b) excessive formation of industrial units
(c) excessive use of man-made compounds containing both fluorine and chlorine
(d) excessive deforestation.

Soln:
Answer is (c) excessive use of man-made compounds containing both fluorine and chlorine

Explanation:

Carbon and fluorine reacts with ozone to convert it into oxygen. This results in thinning of ozone lays which is called as ozone depletion.

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

Soln:

Answer is (d) All of the above

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 CO_2 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.

Soln:

Answer is (b) It comes out with the CO_2 during exhalation

Explanation:

Nitrogen is the most abundant gas in nature hence while inhalation Nitrogen goes inside our body along with oxygen. But Nitrogen is not utilized by our body and it is exhaled along with carbon-di-oxide.

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.

Soln:

Answer is (d) Humus, living organisms and soil particles.

19. Choose the correct sequences
(a) CO_2 in atmosphere → decomposers → organic carbon in animals → organic carbon in plants
(b) CO_2 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 → CO_2 in atmosphere → organic carbon in plants

Soln:
Answer is (b) CO_2 in atmosphere → organic carbon in plants → organic carbon in animals → inorganic carbon in soil .

Explanation:

Green plants utilize atmospheric carbon-dioxide during photosynthesis to make organic compounds. When animals eat plants organic compounds will go to animals. When plant or animals die they get decomposed to turn into in-organic carbon.

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

Soln:

Answer is (a) parent rock from which soil is formed

Explanation:

Rock weathering is a process which forms soil. Rocks are naturally occurring soil aggregates which are rich in minerals. Hence rock is the source of minerals in the soil.

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

Soln:

Answer is (a) 75%

Explanation:

96.5% of the water is found in sea's and oceans , 17% is groundwater, 1.7% in icecaps and glaciers. 0.001% as vapor and 2.5% fresh water.

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

Soln:

Solution is (d) air

Explanation;

Biotic component of biosphere comprise of living entities, air is a non-living component hence air is not a biotic component.

23. An increase in carbondioxide 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

Soln:

Answer is (d) abundance of desert plants

Explanation:

Increase in CO_2 content will not favor growth of desert plants because plants also require, oxygen, minerals and water to growth and development.

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

Soln:

Answer is (c) photosynthesis

Explanation:

Plants take CO2 from environment and they return back oxygen by a process called photosynthesis.

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

Soln:

Answer is (b) unburnt carbon particles or hydrocarbons suspended in air

Explanation:

Unburnt carbon particles and Hydrocarbons suspend in air to create smog. Because of smog visibility will be low in cold weather.

26. Growth of Lichens on barren rocks is followed by the growth of
(a) moss
(b) ferns
(c) gymnosperms
(d) algae

Soln:

Answer is (a) moss

Explanation:

Lichens releases certain enzymes which makes the rock suitable for the growth of moss. Further moss lead to the formation of soil which will allow higher plants to grow.

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.

Soln:

Answer is (a) breeding of animals

Explanation:

Most aquatic animals are cold blooded. Their egg and larvae are highly susceptible to temperature changes hence breeding of animals gets affect from temperature changes.

28. Soil erosion can be prevented by
(a) raising forests
(b) deforestation
(c) excessive use of fertilizer
(d) overgrazing by animals

Soln:

Answer is (a) raising forests

Explanation:

Trees in the forest hold on the soil by its roots. Hence growing forest can prevent 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
c) Rain water leads to fertility of the soil
(d) Rain water does not cause any change in soil

Explanation:

b) Rain water causes loss of surface soil

Explanation:

Roots hold on the surface soil and helps them to get washed away from current of water due to rainfall. When there is no vegetation surface soil gets washed away.

30. Oxygen is harmful for
(a) ferns
(b) nitrogen fixing bacteria
(c) chara
(d) mango tree

Soln:

Answer is (b) nitrogen fixing bacteria

Explanation:

Nitrogen fixing bacteria are anaerobic, they get killed when exposed to oxygen hence oxygen is harmful for them.

Short Answer Questions

31. How do fossil fuels cause air pollution?

Soln:

When we burn fossil fuels carbon-do-oxide, nitrous oxide and other chemicals are released which increase the green-house effect and contribute to global warming. Nitrous oxide forms smog and results in acid rain.

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

Soln:

Loss of top soil can be stopped by 1) Afforestation 2) Crop rotation 3)Counter farming 4) proper irrigation methods.

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

Soln:

Addition of pollutants like fertilizers and chemicals to the water bodies will bring disease to aquatic organisms. Pollutants increases the oxygen requirement in aquatic life. Pollutants also decrease the dissolved oxygen in the water which will affect the aquatic life adversely.

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

Soln:
Lake water gets evaporated and vapors due to evaporation creates a cooling effect near lake. Hence we feel relieved 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.

Soln:

During day time land heats more than sea .This create a low pressure in the land and wind always move from low pressure to high pressure regions. Similarly in the night land cools faster and sea remains hot making wind to move from sea to land.

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.

Soln:

Answers are (a) lichen (b) mosses

Explanation:

Lichens grow on rocks and releases certain enzymes which favor the growth of mosses. Mosses forms clumps of soil from rock which results in formation of top 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?

Soln:

Abiotic factors;
Sun, water and 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.

Soln:

C, N, S, P, H and O are enter the living community through plants. Carbon comes through photosynthesis and nitrogen are obtained through nitrogen fixing bacteria. Sulphur and Phosphorus are absorbed from soil. Hydrogen and oxygen are obtained by water. These nutrients are obtained by animals from plants.

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

These gases are used by human beings for their growth and development. But these are returned back to environment in one or other form. This process of using natural resources and giving them back to nature is called as Bio-Geo Chemical cycle. Because of Bio-Geo Chemical cycle percentage of gases like oxygen, nitrogen and carbon dioxide remain almost the same in the atmosphere.

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

Soln:

Earth has atmosphere which prevents over heating of the earth during day time. On the other hand Moon does not have atmosphere hence it appears to be hotter during day time. Lack of atmosphere in moon also allows the heat to escape during night because of this phenomenon temperature varies on moon surface.

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

Soln:

Near the sea shore breeze blows during day time which is ideal for flying kites.

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

Soln:

Mathura refinery releases oxides of Sulphur which causes acid rain. Acid rain corrodes the marble of tajmahal hence Mathura refinery pose problems to Tajmahal.

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

Soln:

Lichens are sensitive to Sulphur oxide released by automobiles. Delhi has more number of automobiles which increase the pollution. Pollution avoids lichens in Delhi.

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

Soln:

Sea water is not suitable for livelihood of humans and plants. Fresh water resources are limited hence they need to be conserved.

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

Soln:

Reasons for mortality of fishes in a pond are i) Thermal pollution ii) addition of mercuric compounds and other toxic chemicals iii) Blockage of gills by pollutants.

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

Soln:

Lichens releases enzymes that break the rock into smaller pieces and helps in formation of soil.

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

Soln:

Water causes soil formation by following steps.

1) Water causes wear off of rock for a long period of time.
2) Water makes rubbing between the rocks to smaller particles which are deposited as soil.
3) On freezing, water expands to cause breaks in the rock.

48. Fertile soil has lots of humus. Why?

Soln:

Fertile soil has a number of microorganisms that decomposes dead and organic matter to convert to humus. Humus provides nutrients, absorb water and makes soil porous.

49. Why step farming is common in hills?

Soln:

In hills there are steep slopes which risk washout of topsoil by wind and rain. In order to conserve top soil step farming is done in hills.

50. Why are root nodules useful for the plants?

Soln:

Root nodules are the home for nitrogen fixing bacteria called a Rhizobium. Rhizobium fixes atmospheric nitrogen thereby increasing soil fertility.

Long Answer Questions

51. How do fossil fuels cause air pollution?

Soln:

Fossil fuels like petrol, diesel and kerosene releases oxide of Sulphur, nitrogen and carbon. Sulphur and Nitrogen oxides causes acid rain.

Burning fossil fuels release carbon monoxide which increase the carbon-di-oxide in the atmosphere which will affect living organisms.

Burning of fuels increase the amount of suspended particles in the air which reduces the visibility.

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

Soln:

Causes of water pollution are given below

1. Chemical Fertilizers and pesticides consists of poisonous chemical which reach the water body to turn water into toxic.
2. Dumping of sewage directly into water bodies
3. Release of industrial effluents into water resources.

Below are the steps we can take to reduce water pollution

1. Stop connecting sewage lines directly to water bodies.

2. Avoiding throwing garbage and other domestic waste into water resource.

3. Prevent dumping of toxic chemical into water body.

4. Avoid washing of clothes near water bodies.

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?

Soln:

Infrared radiation emitted by the sun can pass the transparent glass and increases the temperature inside the car. These radiations have smaller wavelength than the radiations emitted by the car. For these waves transparent glass remain opaque further increasing the temperature.

54. Justify "Dust is a pollutant" ?

Soln:

Dust is a fine powder of tiny earth particles and waste matter. It is carried to the atmosphere by wind, dust causes allergy in humans and affects plant growth by blocking the stomata on the leaf surface. Dust also carries toxic substance from the environment to pollute the water bodies affecting the aquatic life.

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

Soln:

Sunlight heats the rock in the afternoon which results in the expansion of rock. When it cools down in the night contraction takes place which is not at the rate of expansion. Because of this difference in the rate of expansion and contraction rock get cracked to form small rock particles.

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

Soln:

Carbon-di-oxide is considered as a pollutant because it is a green-house gas which is responsible for the global warming. This results in change of earth's climate. Along with that excess CO_2 is harmful for the plants. Increased CO2 levels changes physiology, growth and chemistry of plants. High CO2 concentration also causes suffocation, hard breathing and choking issues.