CBSE Class 9 Science
Important Questions
Chapter 14
Natural Resources

1 Marks Questions

1. Biotic components of biosphere is not constituted by –
(a) Producers

(b) Consumers

(c) decomposer

(d) air

Ans. (d) Air

2. Major source of mineral in soil is the –
(a) Parent rock from which soil is covered

(b) Plants

(c) animals

(d) bacteria

Ans. (a) Parent rock from which soil is covered.

3. 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

4. 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.

5. What are the two forms of oxygen found in the atmosphere?

Ans. oxygen (O_2) and ozone (O_3).

6. Name two biologically important compounds that contain both oxygen and nitrogen.

Ans. urea and proteins.

7. Which one of these are not fossil fuel –
(a) coal

(b) Petrol

(c) Diesel

(d) wood

Ans. (d) wood

8. Which step is not involved in the carbon cycle?
(a) Photosynthesis

(b) Transpiration

(c) Respiration

(d) Burning of fossil fuels.

Ans. (b) Transpiration

9. Total earth's surface covered by water is

(a) 75%

(b) 60%

(c) 85%

(d) 50%

Ans. (a) 75%

10. Growth of lichens on barren rocks is followed by the growth of

(a) Mosses

(b) ferns

(c) gymnosperms

(d) Algae.

Ans. (a) Mosses

11. 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

12. The fertility of soil is lost due to

(a) Afforestation

(b) crop rotation

(c) Soil erosion

(d) strip cropping

Ans. (c) Soil erosion

13. Which organism cannot fix atmospheric Nitrogen?

(a) Rhizobium

(b) Nostoc

(c) Azotobactor

(d) E. coli

Ans. (d) E. coli

14. Harmful UV radiations coming from sun to earth are absorbed by –

(a) O_2

(b) CO_2

(c) NO_2

(d) O_3

Ans. (d) $O_3 (ozone)$

15. Which substance is responsible for depletion of ozone layer?

(a) CO_2

(b) CH_4

(c) CFC'S

(d) CO

Ans. (c) CFC'S

16. Which of the following statements does not give the correct definition in relation with 'water pollution'?

(a) The addition of undesirable substances from water bodies.

(b) The removal of desirable substances from water bodies.

(c)A change in pressure of water bodies.

(d) A change in temperature of the water bodies.

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

17. 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.

18. The major component of air in Venus & Mars is –

(a) O_2

(b) CO_2

(c) NO_2

(d) He

Ans. (b) CO_2

19. Which of the following is present abundantly in air?

(a) Nitrogen

(b) Oxygen

(c) CO_2

(d) Water

Ans. (a) Nitrogen

20. The regions of earth from outside to inside is:

(a) Core, mantle, and crust

(b) Core, crust, and mantle

(c) crust, mental, and core

(d) mantle, core, and crust

Ans. (c) crust, mental, and core

21. Which layer is topmost layer from earth's surface?

(a) Troposphere

(b) Stratosphere

(c) Mesosphere

(d) Thermosphere

Ans. (d) Thermosphere

22. The process by which O_2 gets converted to CO_2 is:

(a) Photosynthesis

(b) Breathing

(c) Respiration

(d) Both (a) and (b)

Ans. (d) Both (a) and (b)

23. What is atmosphere? What are its different regions?

Ans. The layer of air surrounding the earth is called as atmosphere. The different regions are:
(a) Troposphere
(b) Stratosphere
(c) Mesosphere
(d) Thermosphere

24. Conversion of water vapours into droplets of water is by:
(a) Evaporation

(b) Condensation

(c) Sublimation

(d) Freezing

Ans. (b) Condensation

25. Water evaporates from the surface of leaf by:
(a) Transpiration

(b) Evaporation

(c) Condensation

(d) Both (a) and (b)

Ans. (a) Transpiration

26. Percentage composition of O_2 in air is

(a) 21%

(b) 52%

(c) 78%

(d) 12.5%

Ans. (a) 21%

27. CFC stand for

(a) carbon fluorine compounds

(b) carbon fluoro compound

(c) chloro fluoro Carbons

(d) chlorine fluoro compound

Ans. (c) chloro fluoro Carbons

28. Water vapours changes into water droplets by:

(a) condensation

(b) evaporation

(c) sublimation

(d) none

Ans. (a) condensation

29. Which of the following is a greenhouse gas?

(a) CO_2

(b) O_2

(c) ozone gas

(d) both (a) and (b)

Ans. (a) CO_2

30. Layer of earth where life is possible is called

(a) biosphere

(b) lithosphere

(c) hydrosphere

(d) none

Ans. (a) biosphere

31. Main constituent of atmosphere of mars is:

(a) O_2

(b) CO_2

(c) ozone gas

(d) none

Ans. (b) CO_2

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Natural Resources

2 Marks Questions

1. What are the different states in which water is found during the water cycle?

Ans. Water occurs in all three states of matter during the water cycle: solid: ice, liquid: water, gas: water vapour.

2. List any three human activities which would lead to an increase in the carbon dioxide content of air.

Ans. Three human activities which would lead to an increase in the carbon dioxide content of air are:
• burning of coal and petroleum
• combustion of wood
• deforestation (cutting down forests)

3. What is the greenhouse effect?

Ans. Due to trapping of radiations by green house gases like carbon dioxide, methane etc results into increase in the global temperature excess of which leads to global warming and the phenomenon that cause it is named green house effect.

4. What is soil erosion?

Ans. The loss of (wearing away) topmost layer of soil which contains humus and air is called soil erosion.

5. What is the role of decomposer in biogeochemical cycles?

Ans. Decomposers decomposes dead decaying organic matter into simpler form and return minerals into nutrient pool like air, water and soil.

6. What is greenhouse effect? Name a green house gas?

Ans. Increase in earth's temperature due to increased CO_2 concentration in atmosphere, this phenomenon is known as green house effect.
Carbon dioxide is one of the green house gasses.

7. How can we prevent soil erosion?

Ans. Methods of prevention of soil erosion –
a) Deforestation should be stopped. Afforestation should be done.
b) The boundaries of the fields should be planted with trees in two or three rows, to reduce the effect of strong winds in the fields.
c) Crop rotation helps to maintain the fertility of the soil. The water holding capacity of the soil is also maintained by this method.

8. What are the causes of water pollution?

Ans. Causes of water pollution are –

a) Domestic wastes like detergents and sewage
b) Agricultural wastes, such as fertilizers and pesticides which are used to increases crop yield.
c) Substances like compounds of calcium and magnesium get dissolved in water from natural deposits, acting as pollutants
d) Rivers, ponds and lakes are used by people for bathing and washing. These activities contaminate water with various germs such as bacteria and protozoans**.**

9. What are the different types of natural resources? Give examples.

Ans. Natural resources are of two types -
a) Inexhaustible natural resources – Those resources that are present in unlimited quantity

in nature and are not likely to be exhausted by human activities, for example air, water, solar energy.

b) Exhaustible natural resource – These resources are present in limited quantity in nature and these are likely to be exhausted by human activities for example coal, petroleum, minerals.

10. Differentiate between renewable and non-renewable resources.

Ans.

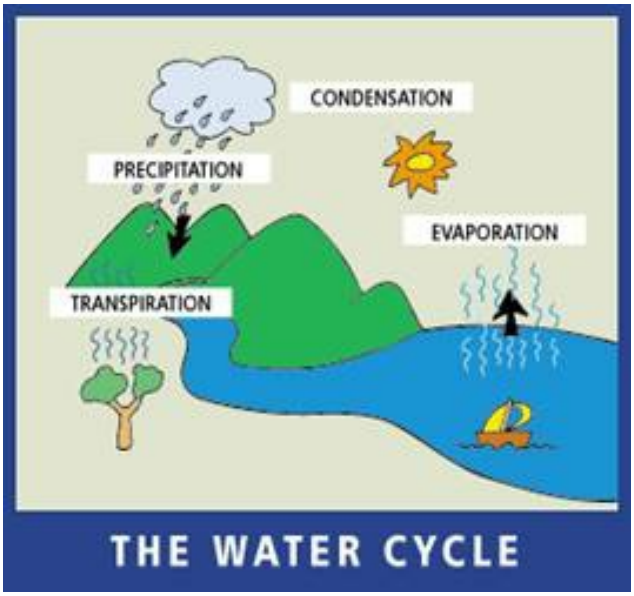
	Renewable Resources	Non-renewable resources
1.	These sources can be used again and again.	The sources cannot be used again and again.
2.	These are not exhaustible.	These are exhaustible.

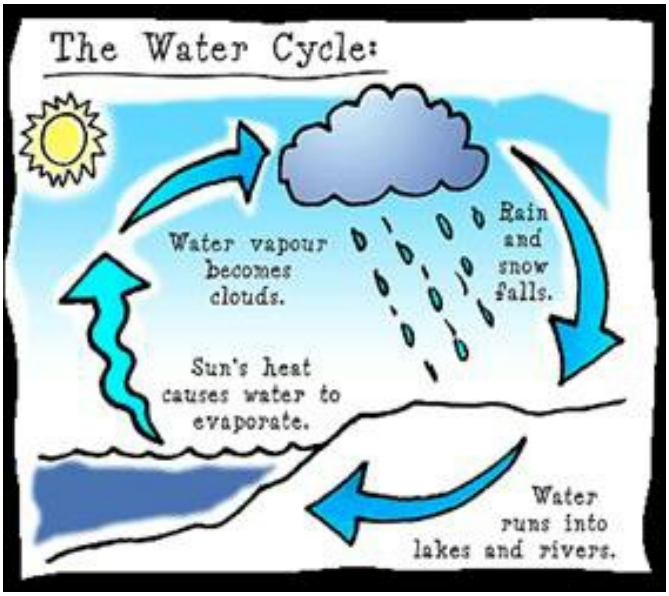
11. River from land, add minerals to sea water. Discuss how?

Ans. River passes through land takes minerals present in the soil and adds it into the sea water.

12. Draw water cycle.

Ans.





13. Mention two ways of restoring fertility of soil.

Ans. Soil fertility can be restored by –
(a) By alternating cropping with leguminous crops.
(b) By application of manures and fertilizers.

14. Why does cultivation of legumes improves soil fertility?

Ans. Leguminous plants bears nodules in their roots. These nodules contain nitrogen fixing bacteria, which converts atmospheric nitrogen into soluble form and adds it into the soil and thus increases the fertility of soil.

15. Mention two causes of over-exploitation of natural resources.

Ans. Causes of over exploitation of natural resources are –

(a) tremendous population increase
(b) industrial and technological progress which has increased the rate at which these resources are being used.
(c) Rapid urbanization.

16. Name the constituents of soil.

Ans. Soil contain the following components –

(a) Soil particles – gravel, sand, silt and clay.

(b) Humus – Organic neater, formed by decomposition of dead organisms.

(c) Soil air

(d) Soil water

(e) Soil organisms.

17. What is a soil? How is it important to us?

Ans. The topmost fertile layer of earth is called soil. It provides us –

(i) Food and Fodder.

(ii) Clothing

(iii) Provide anchorage to the plants.

(iv) Water and minerals to the plants.

18. Mention importance of air

Ans. Importance of air –

a) It provides oxygen for respiration in plants and animals.

b) It provides CO_2 for photosynthesis

c) Atmosphere filters sunlight reaching to earth and affects the climate.

d) It is reservoir of several elements essential for life.

19. Write the factors on which fertility of soil depends.

Ans. The fertility of soil depends upon –

(a) presence of organic matter (humus) and nutrients.

(b) Capacity of the soil to retain water and air.

20. What is biological nitrogen fixation? Name the organisms responsible for it.

Ans. It is a process in which atmospheric nitrogen is converted into usable or soluble form by micro-organism. Microbes responsible nitrogen fixation are – Rhizobium, Azotobacter, Blue green algae, etc.

21. What are biogeochemical cycles?

Ans. The constant interaction between biotic and abiotic components of biosphere which involves exchange of matter and energy is called as biogeochemical cycle.

22. Why is life possible on earth?

Ans. Life is possible on earth because of the following reasons:

(a) The temperature on earth is suitable for different life forms.

(b) The presence of oxygen in air which is required by all living organisms.

23. Why do terrestrial life forms require fresh water?

Ans. Terrestrial life forms require fresh water because their bodies cannot tolerate and cannot excrete the high amounts of dissolved salt in saline water.

24. How does atmosphere control the climate?

Ans. The atmosphere keeps the average temperature of the earth steady during the day and prevents the sudden increase temperature during day. It also prevents the escape of heat into the outer space and thus maintains a liveable climate on earth.

25. How are wind created?

Ans. During the day, the air above the land gets heated faster and starts rising. As the rises, a region of low pressure is created and the air over the sea moves into the area of low pressure. This movement of air from one region to another creates winds.

26. How does sun helps in breaking up of rocks into smaller pieces?

Ans. Sun heats up rocks during the day so that they expand. In the night, these rocks cool down and contract. Because all parts of rock do not expand and contract at same rate, as a result huge cracks are formed and then they break into smaller pieces.

27. Write the composition of air.

Ans. Composition of air is as follows:

Gas Percentage	by volume	Percentage by mass
(a) Nitrogen	78.09	75.5
(b) Oxygen	20.95	23.2
(c) Argon	0.93	1.0
(d) CO_2	0.031	0.046
(e) Neon	0.002	Negligible
(f) Helium		0.0005
Negligible		

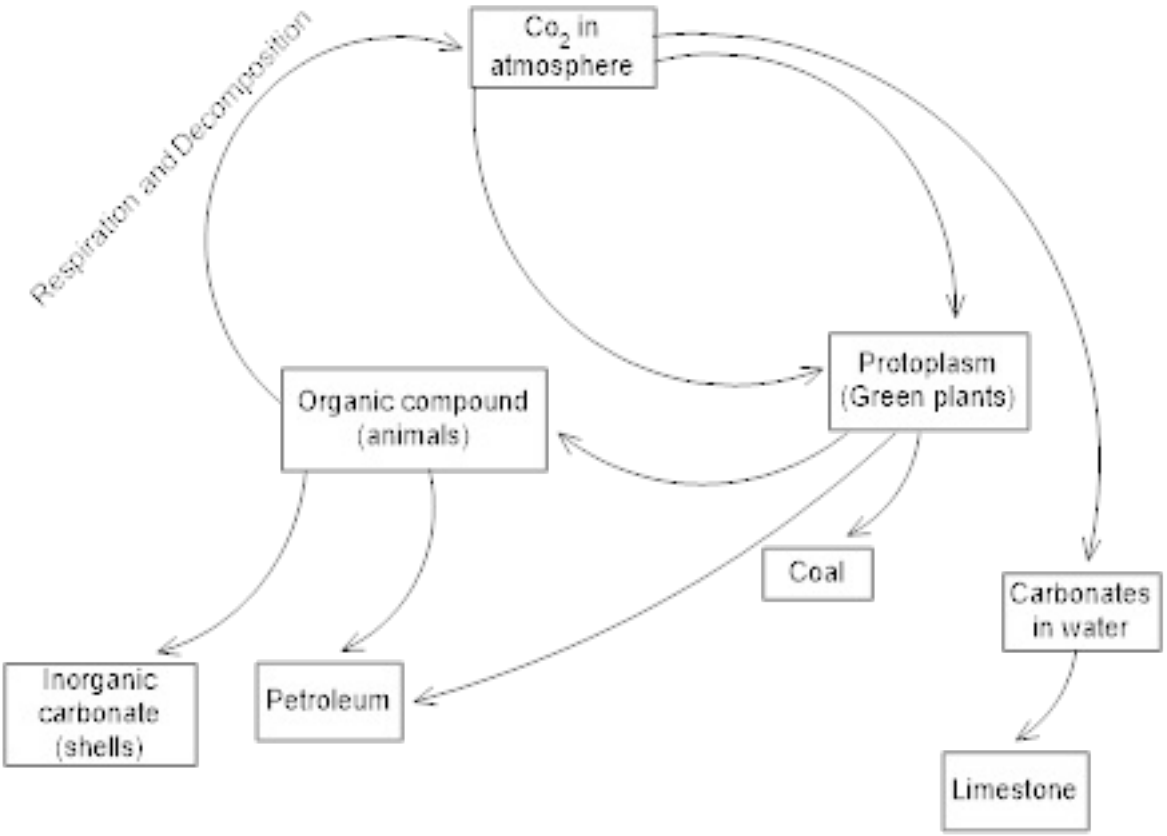
In addition to this, water vapours are prevent.

28. How is soil pollution done?

Ans. Soil pollution happens in following ways:
(a) Use of large amounts of fertilizers and pesticide kills the microorganisms that help in recycling of nutrients in soil.
(b) Earthworms are also killed by pesticide which enriches the soil by making humus.
(c) Useful components get removed and other harmful substances get added which affect the fertility of soil.

29. Explain carbon cycle in nature.

Ans.



(a) CO_2 in air is converted into organic compounds in plants and when they are eaten up by animals then it goes to animals.
(b) Organic compounds in plants also get converted to petroleum, coal.
(c) CO_2 directly converts into carbonates in water and then to limestone.
Organic compound in animals get converted to Co_2 in atmosphere by respiration and decomposition.

30. What is smog? How is it formed?

Ans. Smog is smoke and fog. It is formed when air gets polluted and high levels of smoke is formed. When it gets mixed with fog then smog is formed.

31. Why water is so important in life?

Ans. Water is important for life in following ways:
(a) All cellular processes important for life take place in water medium.
(b) Water helps in transportation of substances in the body.
(c) It also helps in transportation of substances in plant also.

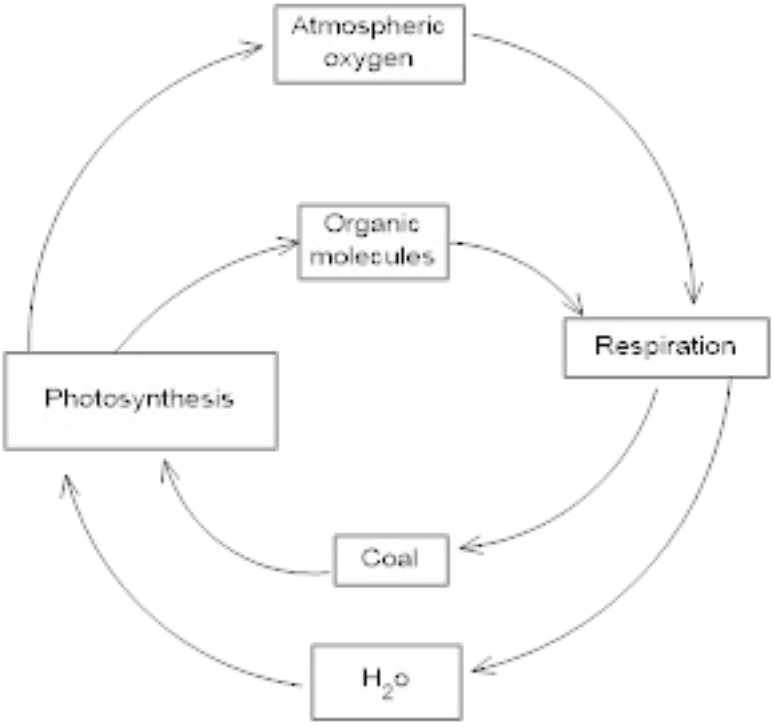
32. How does living organism help in the erosion of rocks?

Ans. Living organism like lichen while growing on the surface of rocks, they release certain substances that cause the rock surface to powder down and hence break rocks into fine particles.

33. How is rain formed?

Ans. Water from water bodies gets evaporated and water vapours are formed. These water vapours then move up the atmosphere and condense into small water droplets. As many water droplets combine, bigger water droplets are formed, as they grow heavy and big, the fall down in the form of rain.

34. Discuss the oxygen cycle in atmosphere?



Ans. (a) Atmospheric oxygen is taken by animal and human beings respiration.
(b) They then release $CO_2 and\ H_2O$ as by- products of respiration.
(c) The $CO_2 and\ H_2O$ is used up during photosynthesis by plants.
(d) The plants form organic molecules like glucose and atmospheric oxygen.
(e) Oxygen is thus replenished whereas glucose stored in plants and eaten up by animal.

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3 Marks Questions

1. How is our atmosphere different from the atmospheres on Venus and Mars?

Ans. On Earth air is a mixture of a number of gases mainly nitrogen (78%) and oxygen (21%) while carbon dioxide is only 0.03% while In planets such as Venus and Mars the major component of the atmosphere is found to be carbon dioxide. In fact, carbon dioxide constitutes up to 95-97% of the atmosphere on Venus and Mars.

2. How does the atmosphere act as a blanket?

Ans. The atmosphere covering the Earth is like a blanket because air is a bad conductor of heat. The atmosphere keeps the average temperature of the Earth fairly steady during the day and even during the course of the whole year. The atmosphere prevents the sudden increase in temperature during the daylight hours. And during the night, it slows down the escape of heat in to outer space.

3. What causes winds?

Ans. When air is heated by radiation from the heated land or water, it rises. But since land gets heated faster than water, the air over land would also be heated faster than the air over water bodies. Therefore, during the day, the air above the land gets heated faster and starts rising. As this air rises, a region of low pressure is created and air over the sea moves into this area of low pressure. The movement of air(wind) from one region to the other creates winds.

4. How are clouds formed?

Ans. When water bodies are heated during the day, a large amount of water evaporates and

goes into the air. Some amount of water vapour also get into the atmosphere because of various biological activities. This air also gets heated. The hot air rises up carrying the water vapour with it. As the air rises, it expands and cools. This cooling causes the water vapour in the air to condense in the form of tiny droplets. This condensation of water is facilitated if some particles could act as the 'nucleus' for these drops to form around. Normally dust and other suspended particles in the air perform this function. As such the clouds are formed.

5. List any three human activities that you think would lead to air pollution.

Ans. (i) Burning of fossil fuels like coal and petroleum releases different oxides of nitrogen and sulphur in air.

(ii) Burning of wood release suspended particles and smoke in air.

(iii) Use of harmful chemicals like aerosols, CFCs etc.

6. Why do organisms need water?

Ans. All organisms are made up of cells. All cellular processes take place in a water medium. All the reactions that take place within our body and within the cells occur between substances that are dissolved in water.

Substances are also transported from one part of the body to the other in a dissolved form. Hence, organisms need to maintain the level of water within their bodies in order to stay alive.

7. What is the major source of freshwater in the city/town/village where you live?

Ans. Major sources of water are:

· rain water that provides water to all other sources

· lakes, ponds and pools

· rivers, wells and tube wells

· dams

8. Do you know of any activity which may be polluting this water source?

Ans. The fertilisers and pesticides used in our farms, sewage from our towns and cities and the waste from factories, specific industries also use water for cooling in various operations and later return this hot water to water-bodies. Such activities are polluting the water bodies.

9. How is soil formed?

Ans. Over long periods of time, thousands and millions of years, the rocks at or near the surface of the Earth are broken down by various physical, chemical and some biological processes. The end product of this breaking down is the fine particles of soil. Factors responsible are as follows:

The Sun: The Sun heats up rocks during the day so that they expand. At night, these rocks cool down and contract. Result is formation of cracks.

Water: Water helps in the formation of soil in two ways. One, water could get into the cracks in the rocks formed due to uneven heating by the Sun. If this water later freezes, it would cause the cracks to widen.

Wind: In a process similar to the way in which water rubs against rocks and wears them down, strong winds also erode rocks down.

Living organisms: The lichen grows on the surface of rocks. While growing, they release certain substances that cause the rock surface to powder down and form a thin layer of soil. Other small plants like moss, are able to grow on this surface now and they cause the rock to break up further. The roots of big trees sometimes go into cracks in the rocks and as the roots grow bigger, the crack is forced bigger.

10. What are the methods of preventing or reducing soil erosion?

Ans. The methods of preventing or reducing soil erosion are as follows:

(i) prevention of deforestation and overgrazing.

(ii)afforestation and reforestation

(iii) improved methods of agriculture

11. Why is the atmosphere essential for life?

Ans. We need atmosphere for following reasons:

(i) It works like a blanket and traps the radiations reflected back from earth surface that keeps the average temperature of earth of quite steady and suitable for sustenance of life.

(ii) It provides carbon dioxide for photosynthesis and oxygen for respiration and combustion.

(iii) Prevents sudden change in temperature.

(iv) Enables us to hear sounds.

12. Why is water essential for life?

Ans. Water essential for life because:

i. All organisms are made up of cells. All cellular processes take place in a water medium. All the reactions that take place within our body and within the cells occur between substances that are dissolved in water.

ii. Substances are also transported from one part of the body to the other in a dissolved form.

iii. Essential for digestion.

iv. Helpful in excretion and egestion.

v. Regulates our body temperature by sweating and evaporation.

13. How are living organisms dependent on the soil? Are organisms that live in water totally independent of soil as a resource?

Ans. Plants need simple nutrients like certain elements for their proper growth and they get

most of these elements from soil. With the help of these elements plants prepare their own food in the presence of sunlight. Since all other organisms are dependent upon plants for their nutrition hence we can say that organisms that live in water are not totally independent of soil as a resource. Another reason is that organic matter from soil dissolves into water and provides nutrients to the aquatic organisms.

14. You have seen weather reports on television and in newspapers. How do you think we are able to predict the weather?

Ans. The weather predictions are made based on information obtained about general patterns of changes in temperature, humidity, winds and clouds.

15. We know that many human activities lead to increasing levels of pollution of the air, water-bodies and soil. Do you think that isolating these activities to specific and limited areas would help in reducing pollution?

Ans. Isolating many human activities lead to increasing levels of pollution of the air, water-bodies and soil would help in reducing water and soil pollution but it can hardly make any difference to air pollution severity the reason is gases will spread from isolated places and reach everywhere. Instead of isolating we must stress on sustainable management of our resources and cut down or replace their use like using cleaner fuels like CNG in place of fossil fuels.

16. Write a note on how forests influence the quality of our air, soil and water resources.

Ans. Quality of air: Forests have trees and plants that absorb carbon dioxide and liberate oxygen thus maintaining their levels in the biosphere.

Quality of soil: Roots of trees hold the soil particles and prevent soil erosion from taking place. Dead trees and plants or their parts add humus and organic matter to soil thus making it fertile.

Quality of water: Forest allows easy going of the water cycle in nature with cloud formation and condensation in the form of rain.

17. List the abiotic and biotic factors of soil formation.

Ans. Abiotic factors responsible for soil formation are:

a) Sun - the sun heats up rocks during the day so that they expand. In night, the rocks cool down and contract. Unequal expansion and contraction in different parts of rock results in the formation of cracks and turns into soil.

b) Water – Continual movement of rain and river water, causes breaking down of rock particles into finer particles

c) Wind – Wind blowing across a rock surface also has an abrasive effect on the rocks.

Biotic factors responsible for soil formation – certain life forms like the lichens can grow on the surface of rocks. The lichens produce acids which corrode the rocky surface, and produce fine particles.

18. Mention human activities that lead to air pollution.

Ans. Sources of air pollution are

a) Forest fires, smoking volcanoes dust storms, pollen grains floating in air and decay of organic natter

b) Over – population, deforestation, urbanization, and industrialization.

c) Burning of fossil fuels in automobiles, thermal power plants and industries.

19. Why does Mathura refinery pose problem to Taj Mahal?

Ans. Mathura refinery released acidic gases such as sulphur dioxide and nitrogen dioxide in the air. In the air, in the presence of moisture, sulphur dioxide is oxidised to sulphuric acid (H_2SO_4) and nitrogen dioxide is oxidized to nitric acid. These acid come down to earth surface and water bodies along with rain water. The rain water containing acids as pollutants in it called acid rain. This acid rain is posing problem to the marbles of Taj Mahal.

20. How does the atmosphere act as a protective blanket? Mention the harmful affects of ultraviolet rays?

Ans. The atmosphere acts as protective blanket for the Earth. It absorbs most of the harmful radiation such as ultraviolet radiations coming from the sun. The harmful radiation are absorbed in the upper atmosphere as well as reflected back into the space. The excessive heat and sun's rays are reflected back into the space by dust particles, water vapours and clouds. Due to this Earth receives the right amount of heat and sun's rays, which helps in climate control and allows living organisms to exist.

Harmful effects of U. V. rays – It causes blindness and skin cancer.

21. Give reasons –

a) step farming is common in hills.

b) fertile soil has lot of humus.

Ans. (a) On the sloping areas in hills, step farming reduces the steepness of the slopes and checking soil erosion.

(b) Decomposition of dead organic matter takes place in the top layer soil. This convents organic matter into humus. Hence, fertile soil has humus.

22. What are the harmful effects of air pollution.

Ans. Harmful effects of air pollution –

(a) Air pollution effects the respiratory system of living beings and causes bronchitis, pneumonia, asthma and lung cancer.

(b) Burning of fossil fuels like coal and patrol releases oxides of nitrogen and sulphur, which causes acid rain.

(c) The burning of fossil fuels like coal and petroleum also increases the amount of suspended particles in air. Presence of these pollutants in air during cold season causes the formation of smog which reduces visibility and causes problems on the roads.

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

Ans. Water needs conservation –

(a) Due to increasing population, use of water increases in large quantities.

(b) Due to increased water pollution.

(c) Due to less rainfall water level decreases.

24. What is weathering? What are the different means by which weathering occurs.

Ans. Formation of soil due to breakdown of rocks is known as weathering.

It occurs by

(a) Physical means – such as the sun (temperature), rain, wind, frost.

(b) Biological means – Through the action of plants, animals and micro-organisms.

25. List the ways by which carbon dioxide concentration increases in the atmosphere.

Ans. (a) Both plants and animals release carbon dioxide to the atmosphere as a product of respiration.

(b) By decomposition of organic wastes and dead bodies by decomposers.

(c) By burning of fossil fuels, like wood, coal, petrol, gas and kerosene.

(d) By volcanic eruptions.

(e) By weathering of carbonate containing rocks through the action of soil micro-organisms, plant roots and acid rain.

26. 'Water is essential for the sustenance of life' Justify the statement.

Ans. Importance of water for life –

(a) It acts as a universal solvent.

(b) Most of the activities occur in water inside the body.

(c) Substances are transported from one part of the body to the other in a dissolved form.

(d) It dissolves waste products and help in excretion.

(e) Aquatic organisms utilize oxygen dissolved in water.

27. How do forests influence our air, water and soil?

Ans. (a) Forest act as purifier of air, They utilize carbon – dioxide and release oxygen, in the process of photosynthesis.

(b) Forest also maintain level of water under the soil Roots of trees absorbs water and increase water level.

Trees also help in the formation of clouds by the process of transpiration and increases humidity (water vapour) in the air. This water vapour further forms clouds and helps in rain.

(c) Roots of trees hold the soil and prevent soil erosion. This maintains the fertility of the soil.

28. What is greenhouse effect? How it affects earth's atmosphere.

Ans. Increased concentration of CO_2, water vapour and other atmospheric gases like methane nitrous oxides inhibit the escape of solar radiations. This results in increase of the temperature of atmosphere above the surface of earth making it warmer. This phenomenon is known as greenhouse effect.

The warm atmosphere would melt the snow of polar and alpine regions which may raise the sea-level and submerge low lying area of laud.

29. What are the harmful effects of water pollution?

Ans. Harmful effects of water pollution are –

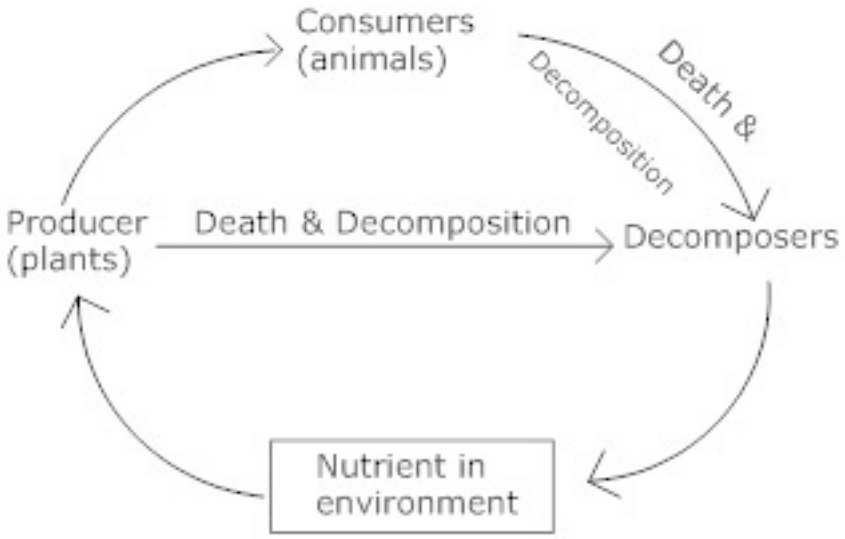
a) Polluted water causes water –borne diseases such as dysentery, cholera, jaundice.

b) Pesticides like DDT enter into the water bodies along with rain water. From here, they enter the food chain via producers and they get concentrated at each trophic level. This is known as biological magnification. It badly affects the organism at of the top of the food chain.

c) Eutrophication – The excessive growth of *phytoplankton* due to discharge of sewage water, reduces the dissolved oxygen which affects aquatic life.

30. What is biogeochemical cycle? How cycling of nutrients takes place in the atmosphere?

Ans. The cyclic flow of nutrients between non-living environment (soil, air, water) and living organisms is called biogeochemical cycling.



31. List the ways by which carbon dioxide concentration decrease from the atmosphere.

Ans. Ways by which carbon dioxide concentration decreases –

a) Photosynthesis – Plants takes carbon dioxide from air and utilizes it in the synthesis of food.

b) Fossilization – Dead plants and animals changes into fossils fuels like coal & petroleum

due pressure, temperature of earth

c) Carbon dioxide present in water traps carbonates and graphites in the rocks.

32. How do fossil fuels causes air pollution?

Ans. Burning of fossil fuels has following effects –

a) Burning of fossil fuels releases oxides of nitrogen and Sulphur. It causes respiratory problems as well as acid rain.

b) Burning of fossil fuels increase amount of suspended particles in air, which forms smog during winter. It reduces visibility and causes accidents on roads.

c) On burning it release CO_2 which traps Solar energy and increases the temperature of the earth.

33. Write in detail what happens when water gets polluted.

Ans. When water gets polluted, then following events happen:

(a) Undesirable substances get added to water-bodies which may cause cholera.

(b) Desirable substance may get removed from water-bodies and dissolved oxygen in water which is important for aquatic life and endangering aquatic life.

(c) If water gets polluted, then temperature of water changes which would adversely affect the life forms in water.

34. Discuss the nitrogen cycle in nature?

Ans. Nitrogen cycle in following steps:

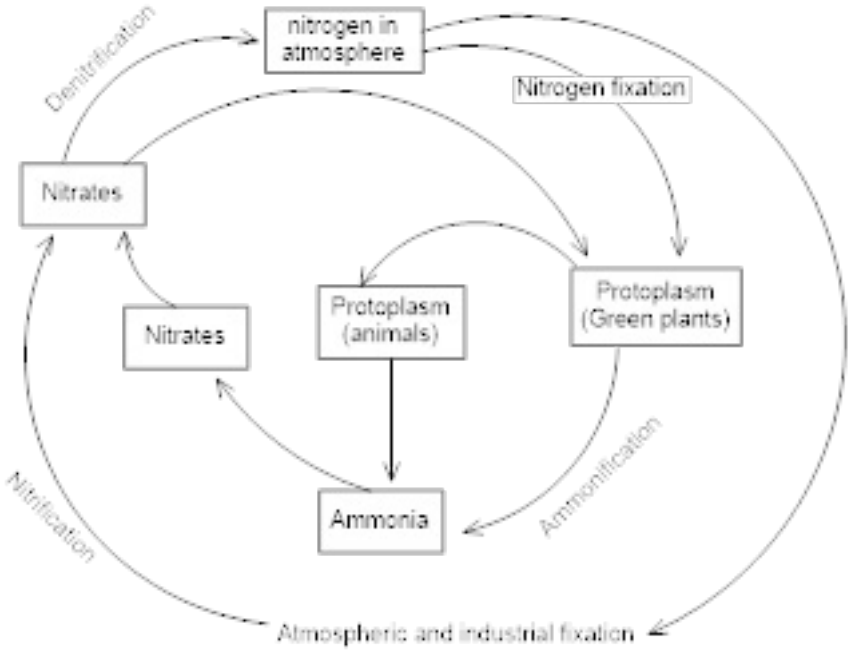
(a) Nitrogen in atmosphere gets converted to protoplasm in green plants by nitrogen fixation.

(b) The protoplasm gets converted into ammonia by ammonification.

(c) The ammonia then converts to nitrites and then nitrates.

(d) Then nitrogen in atmosphere gets directly converted to nitrates through nitrification.

(e) The nitrates get converted into nitrogen through denitrification.



35. What is greenhouse effect? What would happen if the level of CO_2 in air would increase?

Ans. The phenomenon by which heat is trapped by various gases in air leading to higher temperature on earth is called as greenhouse effect.

If the levels of CO_2 increase in air, then because CO_2 is a greenhouse gas, greenhouse effect would increase leading to rapid increase in temperature of earth's atmosphere. This would results in melting of glaciers and would endanger life forms on earth.

36. What is the function of ozone in the atmosphere? How is ozone hole created?

Ans. Ozone layer absorbs harmful radiations from the sun and prevents them from reaching the earth's surface where they may damage the forms of life. Compound like CFC reacts with ozone to molecules and convert them to free oxygen. As a result, reaction in ozone layer takes place and ozone holes have been detected over Antarctica.

37. What is soil? What is the role of soil in agriculture?

Ans. The soil refers to the loose surface of the earth's crust. Soil is the medium for growth of all plants. It provides physical supports and nutrients and also the sufficient quantities of air and water for growth of plants.

38. What is the difference between the atmospheres of the earth and atmosphere of Venus and Mars?

Ans. Atmosphere of earth has oxygen which is important for sustaining life on earth It is required during breathing and respiration two most important events of life, whereas atmosphere of Mars has CO_2 as units main constituent and thus life is not possible on earth.

39. What is air pollution? How does it lead to acid rain?

Ans. The mixing of undesirable substances in air that changes the basic constituents of air and makes it harmful is called air pollution.

When we burn fossil fuel like coal and petroleum, various oxides of nitrogen and sulphur are produced. These oxygens then mix with rain water and form nitric and sulphuric acid which then falls down on earth surface as acid rain. This acid rain is very dangerous as it can cause various disorders to living organisms and also destroys the buildings and monuments.

40. Why is CO_2 so important for life on earth? What are the two ways by which it is fixed on earth?

Ans. CO_2 helps in heating up of the earth's surface which helps to maintain suitable temperature for life forms on earth. It is also required for photosynthesis by plants. It is fixed in two ways-

(a) Green plants convert CO_2 into glucose in presence of sunlight.

(b) Marine animals use carbonates dissolved in sea- water to make their shells.

CBSE Class 9 Science

Important Questions

Chapter 14

Natural Resources

5 Marks Questions

1. Draw nitrogen cycle? Explain the different steps.

Ans. Steps of Nitrogen cycle

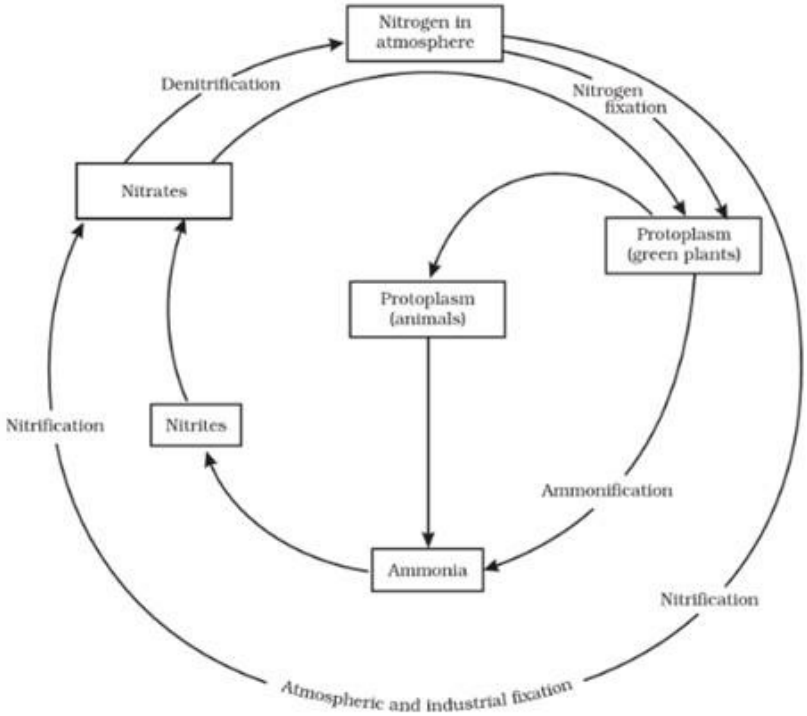
1) Ammonification – The process of conversion of complex organic compounds like proteins into ammonia (NH_3) is called ammonification.

2) Nitrification – The process of conversion of ammonia into nitrites and nitrates is called nitrification. It occurs in two steps.

a) Ammonia $\xrightarrow[\text{(Bacteria)}]{\text{Nitrosomonas}}$ Nitrate

b) Nitrite $\xrightarrow{\text{Nitrobactor}}$ Nitrate

3) Denitrification – The process of conversion of nitrite salts in the soil and water to free nitrogen gas. This is done by bacteria pseudomonas.



2. Draw carbon cycle.

Ans.