

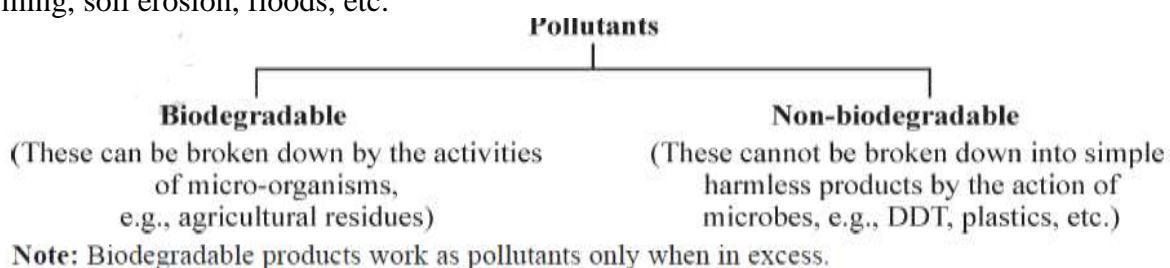
Assignments in Science Class X

Topic: - Our Environment

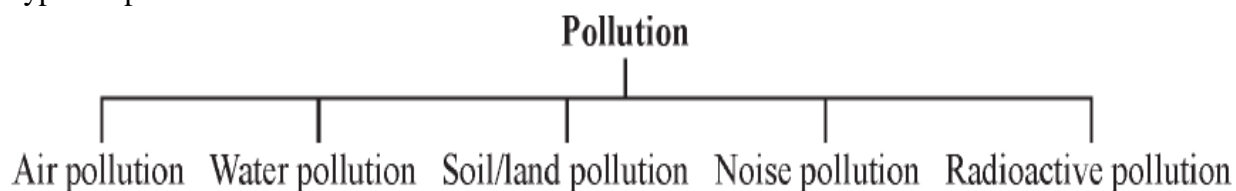
IMPORTANT NOTES

1. An ecosystem consists of **biotic** components comprising of living organisms and **abiotic** components comprising of physical factors like temperature, rainfall, wind, soil and minerals.
2. The term 'environment' refers to the complete range of physical and biological conditions in which organisms live. The environment has four components — atmosphere, hydrosphere, lithosphere and biosphere.
3. Environmental biology, also called ecology, is the study of relationships between living things and the non-living components.
4. An ecosystem is a self-sustaining, structural and functional unit of biosphere. It is an open system in terms of energy and a closed system as far as flow of minerals is concerned.
5. The small plants floating on the surface of water are phytoplanktons. A pond, lake, river, forest, desert, even a man-made aquarium and a crop field are the examples of different types of ecosystems.
6. **Producers** or autotrophs synthesise their own food by photosynthesis. **Consumers** or heterotrophs are dependent upon other organisms for food. Consumers may be classified as herbivores, carnivores, omnivores and parasites.
7. **Decomposers** or **saprotrophs** consume and thus decompose the dead remains of other organisms (both autotrophs and heterotrophs).
8. The sequential process of eating and being eaten is called a **food chain**. The flow of energy in a food chain is unidirectional. A simple food chain operating in a grassland can be shown as follows: Grass → Deer → Lion.
9. The network of interconnected food chains is called food web. The various links or steps representing organisms in a food chain at which the transfer of food (and energy) takes place are called trophic levels.
10. There is a continuous transfer of energy from one trophic level to the next in a food chain. Only 10 per cent of the total energy entering a particular trophic level is available for transfer to the next trophic level.
11. **Biomagnification** is the increase in harmful chemicals throughout the trophic levels.
12. The sum total of all the factors that make our surroundings is called the environment. Human activities have damaged the balance of this environment leading to problems like global warming, soil erosion, floods, etc.

13.



13. Types of pollution



14. Ozone is a molecule consisting of three atoms of oxygen. Ultraviolet rays are known to cause skin cancer, eye damage and damage to the immune system. There are several reasons for the depletion of ozone layer. The foremost is the use of

15. Chlorofluorocarbons (CFCs).

16. In 1987, 27 industrialised countries signed the Montreal Protocol, a landmark international agreement related to ozone layer depletion.

17. Municipal Solid Wastes (MSWs) are commonly called garbage. Main source of non-biodegradable wastes are improved packaging methods and increased use of disposals.

18. Ecofriendly ways of waste disposal —

1. Most urban solid wastes can be burnt to make landfills.
2. Wastes like plastics, metals, etc., may be recycled.
3. Plastic wastes can be molten and mixed with asphalt to produce road making material.
4. Many domestic wastes like vegetable refuse can be composted and effectively used as manure.
5. Incineration, i.e., burning at a high temperature is recommended for many non-reutilisable waste.

VERY SHORT ANSWER QUESTIONS IMPORTANT QUESTIONS

1. What is hydrosphere?
2. What does biosphere represent?
3. What is the largest biological system on earth?
4. What is the terrestrial ecosystem?
5. What are the non-living components of an ecosystem?
6. What are phytoplanktons?
7. Write two examples of natural ecosystem.
8. What is food chain?
9. Write the common food chain of a pond ecosystem. [HOTS]
10. How much pollution of air is due to emission?
11. Which pollutants are contributed by airplane?
12. Name any two wastes that can be recycled and reused.
13. When was Montreal Protocol started?
14. When is World Ozone Layer Preservation Day celebrated?
15. Gradual increase in the atmospheric temperature is an observed fact at present. What is this due to? [HOTS]
16. Which one of the following is the pollutant that affects the oxygen carrying capacity of blood?
SO₂, CO₂, CO, H₂S.
17. State any two harmful effects of radiations emitted by nuclear wastes. [HOTS]
18. Which of the following materials are non-biodegradable?
 - (a) Paper, leather, nylon, egg shell, glass.
 - (b) Tea leaves, glass, glucose, cotton cloth, silver foil.
 - (c) Glass, glucose, leather, silver foil, nylon cloth.

QUESTIONS FROM CBSE EXAMINATION PAPERS

1. Why is ozone layer getting depleted at the higher levels of the atmosphere?
2. Which compounds are responsible for the depletion of ozone layer?
3. Which disease is caused in human being due to depletion of ozone layer in the atmosphere?
4. What are the two main components of our environment?
5. Name any two abiotic component of an environment.
6. What is meant by the term 'environment'?
7. What is the effect of an increase in percentage of dust particles in the atmosphere on the temperature of the earth?
8. Which one of the following pollutants of air would affect the capacity of blood in human bodies to absorb oxygen from the lungs? NO₂, SO₂, CO, CO₂
9. Write any one major cause of water pollution.
10. Name the group of chemical compounds which adversely affects the ozone layer.
11. Which of the following are biodegradable? (a) Wool, glass, silver foil, leather.
(b) Leather shoe, earthen pot, silver spoon, jute bag.
(c) Tomato leaves, aluminium wire, synthetic fibre, wool.
12. Which of the following belonging to a food chain is likely to have maximum concentration of harmful chemicals in its body?
(a) Kingfisher, zooplankton, fish, phytoplankton
(b) Peacock, frog, snake, grasshopper
(c) Frog, hawk, grasshopper, snake
(d) Small fish, zooplankton, birds, Phytoplankton
13. Which two of the following belong to the same trophic level?
(a) Grasshopper, frog, grass, lizard.
(b) goat, grass, crow, squirrel.
14. Rearrange the following according to their ascending trophic levels in a food chain: Hawk, grass, snake, rabbit.
15. In the following food chain 20 J of energy was available to the hawks. How much would have been present in the plants? Plants → Rats → Snakes → Hawks [2000]
16. If a harmful chemical enters a food chain comprising fishes, phytoplanktons and birds, which of the organisms is likely to have minimum concentration of the harmful chemicals in its body?

SHORT ANSWER QUESTIONS IMPORTANT QUESTIONS

1. In what aspects ecosystem is both an open as well as a closed system?
2. Give examples of a grassland and a lake food chain.
3. What is food web?
4. What is a trophic level?
5. Give two differences between food chain and food web.
6. Suggest one word for each of the following statements/definitions.
(a) The physical and biological world where we live in.
(b) Each level of food chain where transfer of energy takes place.
(c) The physical factors like temperature, rainfall, wind and soil of an ecosystem.
(d) Organisms which depend on the producers either directly or indirectly for food.
7. Explain the role of decomposers in the environment. [HOTS]
8. Select the mis-matched pair in the following and correct it.
(a) Biomagnification — Accumulation of chemicals at the successive trophic levels of a food chain
(b) Ecosystem — Biotic components of environment
(c) Aquarium — A man-made ecosystem

- (d) Parasites — Organisms which obtain food from other living organisms
9. We do not clean ponds or lakes, but an aquarium needs to be cleaned. Why?
 10. Write two natural sources of air pollution.
 11. Write the harmful effects of ozone depletion.
 12. Define the process that is a direct outcome of excessive burning of fossil fuels.
 13. Which chemicals are responsible for the infiltration of ultraviolet rays to the earth? What is their nature of action?
 14. Name two gases whose concentration is likely to be higher in the atmospheric air near a busy road crossing through which a large number of automobiles pass at every instant. [HOTS]
 15. Why is improper disposal of waste a curse to environment?
 16. What are the advantages of cloth bags over plastic bags during shopping?
 17. Why are crop fields known as artificial ecosystems?
 18. Describe how ozone present in the atmosphere is important for sustaining life on earth.

QUESTIONS FROM CBSE EXAMINATION PAPERS

1. What is ozone? How does it protect the organisms on the Earth?
2. Observe the food chain Plant (1000 kJ) → Goat → Lion
 - (a) If autotrophs occupying the first trophic level are called producers what are herbivores called as?
 - (b) How much energy does the lion get in the above food chain?
3. (a) What are decomposers?
(b) State in brief the role of decomposers in the environment.
4. (a) “Sun is the ultimate source of energy of fossil fuels”, justify this statement.
(b) Write two disadvantages of using fossil fuels.
5. Suggest two measures which could be incorporated in daily life to become more environment friendly.
6. What is watershed management? How is it helpful to ecosystem?
7. How is coal formed? State the two pollutants which cause acid rain.
8. What harm has been caused to alpine meadows since nomadic shepherds have stopped from grazing their cattle in such meadows?
9. “Industrialization is one of the main cause of deterioration of environment”. List any four reasons in favor of this statement.
10. Burning of coal and petroleum pollute the environment. Justify this statement.
11. The construction of large dams lead to (i) social and (ii) environmental problems. List two problems in each case.
12. Construct an aquatic food chain showing four trophic levels.
13. An environmentalist on visit to your school suggested the use of three R’s to save the environment. Explain what he meant by three R’s and how you would follow his advice at home?
14. How is ozone formed in the upper atmosphere? Why is the damage of ozone layer a cause of concern to us? State cause of this damage.
15. What are biodegradable and non-biodegradable substances? Select two biodegradable pollutants from the following:
Agricultural waste, glass, plastic, sewage, DDT
16. State two problems caused by the non-biodegradable waste that we generate in our daily life.
17. “Rapid increase of population disturbs the biotic environment.” Justify this statement taking any two aspects.
18. Describe any four modes of disposal of waste.
19. How can air pollution lead to:
 - (i) skin cancer in man?
 - (ii) melting of ice cap of earth?

20. How do food chains get shortened? How does their shortening affect the biosphere?
21. What is biological magnification? If the concentration of DDT was 0.2 ppm in water of a lake, what would be its likely concentration in fish in the following food chain? Plankton → Fish → Fish-eating birds
22. Write the food chain operation in a freshwater pond. Mention the food habit of each trophic level in this food chain.

SHORT ANSWER QUESTIONS IMPORTANT QUESTIONS

1. Why is energy flow considered as unidirectional?
2. Give an example of a food chain consisting of four organisms at different trophic levels. Give the scientific term used to indicate the first and third trophic level. [HOTS]
3. What would happen if all the decomposers were eliminated from the Earth? Explain.
4. “Vegetarian food habits can sustain a larger number of people.” Justify the statement in terms of food chain.
5. With the help of an example, involving four organisms, describe how energy flows from different trophic levels?
6. List three reasons to show that the existence of decomposers is essential in biosphere.
7. Describe with a diagram how energy flows through different trophic levels. Describe how transfer and circulation of material takes place in nature. State how recycling of materials benefits living organisms.
8. Classify pollutants on the basis of their ability to get broken down by natural agents.
9. How do the following air pollutants enter the atmosphere and how do they affect humans?
Explain : (i) Lead (ii) Chlorofluorocarbons (CFCs)
10. What are the three major types of pollution? Name two pollutants in each category.
11. Mention any three ill consequences of depletion of ozone layer.
12. Name the wastes which are generated in your house daily. What measures would you take for their disposal?
13. Suggest suitable mechanism for waste management in fertiliser industries.
14. What are the by-products of fertiliser industries? How do they affect the environment?
15. Explain some harmful effects of agricultural practices on the environment.

QUESTIONS FROM CBSE EXAMINATION PAPERS

1. Why are bacteria and fungi called decomposers? List any two advantages of decomposers to the environment.
2. (a) Distinguish between producers and decomposers.
(b) Classify the following as producers and decomposers: green plants, bacteria, fungi, blue-green algae.
3. What are biodegradable and non-biodegradable substances? Describe two ways in which non-biodegradable substances affect our environment.
4. (a) What is ‘environmental pollution’?
(b) Distinguish between biodegradable and non-biodegradable pollutants.
(c) Choose the biodegradable pollutants from the list given below: Sewage, DDT, radioactive waste, agricultural waste.
5. Suggest three ways to maintain a balance between environment and development to survive.
6. (a) What is soil erosion? (b) List any two causes of soil erosion. (c) Suggest any two ways to check soil erosion.
7. Distinguish between ‘conservation and preservation’. Suggest any four practices which may help in protecting our environment.

8. Write the cause of each of the following:

- (i) Acid rain
- (ii) Depletion of ozone layer in the atmosphere
- (iii) Greenhouse effect in air.

9. How would you dispose the following wastes?

- (i) Domestic wastes like vegetable peels
- (ii) Industrial wastes like metallic cans
- (iii) Plastic material

10. How and where in our atmosphere is the ozone layer formed? How does it get depleted over time? What would happen to life on Earth if the ozone layer disappears completely?

OR

What component of sunlight is regarded as harmful to us? How it is normally prevented from reaching us? What can destroy this natural protection?

11. What is ten per cent law? Explain with an example how energy flows through different trophic levels.

LONG ANSWER QUESTIONS IMPORTANT QUESTIONS

1. Why is maximum energy available at the producer level?
2. What are different trophic levels in a food chain?
3. What are the components of an ecosystem?
4. What are the different types of ecosystem?
5. What are the features of an ecosystem?
6. Suggest six effective remedies for controlling air pollution.
7. Mention any six ecofriendly modes of waste disposal.
8. Elaborate upon the harmful effects of air pollution, giving 5 clear points.
9. Name any five pollutants that cause diseases. What diseases do they cause? Give details.
10. Suggest any five activities in daily life which are ecofriendly.

QUESTIONS FROM CBSE EXAMINATION PAPERS

1. What component of sunlight is regarded as harmful to us? How it is normally prevented from reaching us? What can destroy this natural protection?