NCERT SOLUTIONS

Our Environment

IN CHAPTER QUESTIONS

PART - 1

Q1. Why are some substances biodegradable and some non-biodegradable?

Ans.

S.No.	Biodegradable Waste	Non-biodegradable waste
1.	They can be broken down into simpler substances by the activity of biological catalysts called enzymes (present in surrounding bacteria or other saprophytes). Physical processes like heat and temperature help in the functioning of enzymes.	They can't be broken down into simpler and harmless products because the biological catalysts called enzymes can't act upon them. They can be acted upon only by some physical processes like heat and pressure.
2.	They can enter the biogeochemical cycles.	They cannot enter the biogeochemical cycles.
3.	They become pollutants only when they accumulate in large quantities and not degraded at the right time.	They always act as pollutants whether present in small or large quantity.
4.	All the biodegradable wastes should be treated properly before discharging them into water or soil.	They can't be treated properly before discharging them into water or soil. Instead, they can be either recycled or reused.
5.	They do not persist in the environment for a long time.	They persist in the environment for a long time.
6.	Examples : Urine and faecal matter, Sewage, Paper, Vegetable and fruit peels, Agricultural residues, Wood and Cloth.	Examples : Heavy metals like Mercury, Lead, Arsenic, Radioactive wastes like Uranium, Plutonium, Insecticides and Pesticides like DDT and BHC.

Q2. Give any two ways in which biodegradable substances would affect the environment.

Ans. (i) If biodegradable substances are not degraded properly on right time , They will be accumulated and will act as pollutant.

(ii) They are used in composting which forms humus that enhances soil fertility.

Q3. Give any two ways in which non-biodegradable substances would affect the environment.

Ans. (i) Non-biodegradable substances contaminate soil and water resources as they cannot be decomposed.

(ii) They may be radioactively active which have hazardous effects to human beings.

PART - 2

Q1. What are trophic levels? Give an example of a food chain and state thedifferent trophic levels in it.

Ans. Trophic levels : The distinct sequential steps in the food chain where transfer of energy occurs are referred to as different trophic levels.

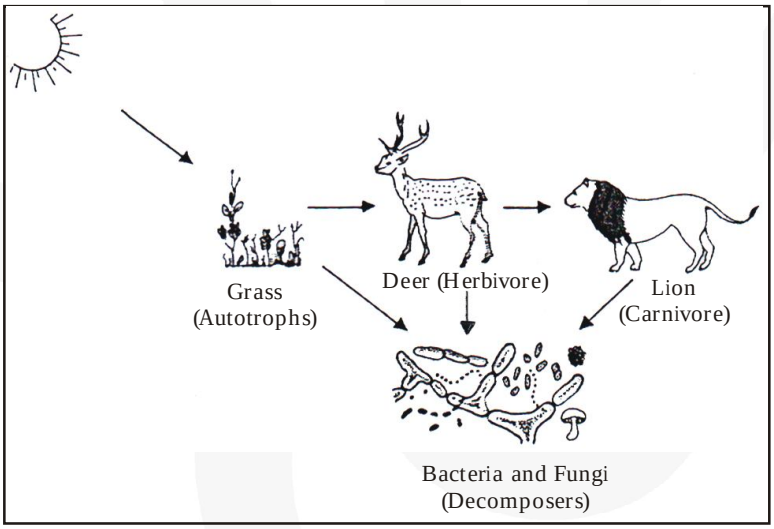

Fig.2 A simple food chain

Q2. What is the role of decomposers in the ecosystem?

Ans. Decomposers are essential components of ecosystem. They decompose dead remains of plants and animals and their waste organic products into simpler, inorganic substances. The latter are released into the environment for their reuse as raw materials by the producers. Thus it maintains balance in nature and play important role in ecosystem.

PART - 3

Q1. What is ozone and how does it affect any ecosystem?

Ans. (i) Ozone is formed in atmosphere by the action of ultraviolet radiation on oxygen gas.

(ii) The high energy ultraviolet radiation (UV radiation) coming from the sun splits oxygen gas into free oxygen atoms

$$O_2 \xrightarrow[\text{radiations from sun}]{\text{Ultraviolet}} 2O \text{ (oxygen atom)}$$

(iii) The free oxygen atoms are highly reactive. One oxygen atom reacts with an oxygen molecule to form an ozone molecule.

$$O_2 + O \longrightarrow O_3 \text{ (Ozone molecule)}$$

Q2. How can you help idegradable and non biodegradable waste before dumping

Ans. To reduce the problem of waste disposal we can :-

(i) Segregate the biodegradable and non biodegradable waste before dumping

(ii) Remove all materials which can be recycled. eg paper, glass.

EXERCISES

Q1. Which of the following groups contain only biodegradable items?

(a) Grass, flowers and leather
(b) Grass, wood and plastic
(c) Fruit-peels, cake and lime-juice
(d) Cake, wood and grass

Ans. (c) Fruit-peels, cake and lime-juice
(d) Cake, wood and grass

Q2. Which of the following constitute food-chain ?

(a) Grass, wheat and mango
(b) Grass, goat and human
(c) Goat, cow and elephant
(d) Grass, fish and goat.

Ans. (b) Grass, goat and human.

Q3. Which of the following are environment friendly practices ?

(a) Carrying cloth-bags to put purchases in while shopping
(b) Switching off unnecessary lights and fans
(c) Walking to school instead of getting your mother to drop you on her scooter
(d) All of the above.

Ans. (d) All of the above.

Q4. What will happen if we kill all the organisms in one trophic level ?

Ans. If we kill all the organisms in one trophic level then transfer of energy as well as matter to next higher level will stop. It will lead to over population at lower trophic level causing competition amongst the individuals. This would seriously disturb the food chain and can cause even a collapse of an ecosystem.

Q5. Will the impact of removing all the organisms in a trophic level be different for different trophic levels? Can the organisms of any trophic level be removed without causing any damage to the ecosystem ?

Ans. Yes, the impact of removing all the organisms in a trophic level will be different for different trophic levels.

For example : Consider the following food chain: Plants ⟶ Deer ⟶ Lion.

If all the lions are removed then the population of deer will increase to such a larger extent and this may result in the following problems:

(i) Due to over-grazing caused by deers soil erosion can take place and forest area will get affected.

(ii) Due to large deer population competition for food will start.

Similarly, if deers are removed then carnivores will get affected. Whereas removal of producers (plants) will affect both deers and lions.

This all suggests that all different organisms in a food chain are linked together and removal of any organism will have different effect but it will cause an ill effect on the stability of that ecosystem.

Q6. What is biological magnification ? Will the levels of this magnification be different at different levels of the ecosystem ?

Ans. The accumulation of harmful chemicals in the body of living organisms at different trophic levels in a food chain is called biological magnification. Yes, the concentration of these harmful chemicals will be different at different trophic levels. It will be maximum at the last trophic levels which is mostly of the top carnivores (quaternary consumers).

Q7. What are the problems caused by the non-biodegradable wastes that we generate ?

Ans. (i) Non-biodegradable waste persist in the environment for a long time and cause greater harm to the various members of the ecosystem by causing biological magnification.

(ii) Non-biodegradable waste such as fertilizers, pesticides, weedicides, etc., changes the soil chemistry. This inturn affects the fertility of soil and subsequently reduces the crop yield.

Q8. If all the waste we generate is biodegradable, will this have no impact on the environment ?

Ans. Biodegradable waste will be recycled easily by the decomposers such as bacteria and fungi. It will have only this bad impact on our environment that, many of the gases released during decomposition process may result in global warming.

Q9. Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

Ans. The ozone shields the surface of the earth from ultraviolet (UV) radiation from the sun. These radiations are highly damaging as they can cause cancer in both plants and animals, damage to eyes and immune system.

They can also lead to variations in global rainfall, ecological disturbances and dwindling of global food supplies.

Due to these reasons, damage to the ozone layer is a major cause for concern.

Steps which are taken to limit this damage:

(i) To decrease the use of synthetic chemicals like chloro fluorocarbons (CFCs) which are used as refrigerants and in fire extinguishers.

(ii) In 1987, the United Nations Environment Programme (UNEP) succeeded in reaching an agreement to freeze CFC production at 1986 levels.