CHAPTER

13

OUR ENVIRONMENT

CLASS 10TH

NCERT EXERCISE AND SOLUTIONS - SCIENCE

Q. 1. 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

ANSWER:-

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

Q. 2. Which of the following constitute a food-chain?

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

ANSWER:-

(b) Grass, goat and human

Q. 3. 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

ANSWER:-

(d) All of the above

Q. 4. What will happen if we kill all the organisms in one trophic level?

ANSWER:-

If all the organisms in one trophic level are eliminated, the transfer of food energy to the next trophic level will stop. This disrupts the food chain, leading to an imbalance in the ecosystem. As a result, organisms at higher trophic levels will die due to the lack of food, while organisms at lower trophic levels will experience rapid population growth. Both of these outcomes will cause ecological disruption.

Q. 5. 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?

ANSWER:-

Yes, the impact of removing all organisms in a trophic level varies depending on the level affected. If all the producers are killed, primary consumers will either die or migrate, and this will also affect higher trophic levels, as they rely on primary consumers for food. On the other hand, if primary consumers are removed, organisms at higher trophic levels will die due to the lack of food, while producers may experience unchecked population growth, far exceeding the environment's carrying capacity.

Removing organisms from any trophic level disrupts the entire ecosystem, as all organisms are interconnected through the food chain. The survival of organisms in one trophic level depends on the presence of organisms in other levels, so disrupting one level leads to a chain reaction that affects the whole ecosystem.

Q. 6. What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

ANSWER:-

Biological magnification refers to the progressive increase in the concentration of non-biodegradable substances in a food chain. These harmful substances accumulate and become more concentrated as they move up through each trophic level. When harmful substances enter the food chain at the level of primary producers, they get concentrated multiple times at each subsequent trophic level, leading to higher concentrations in organisms at higher levels. This can have serious harmful effects on the organisms and the ecosystem as a whole.

Q. 7. What are the problems caused by the non-biodegradable wastes that we generate?

ANSWER:-

Non-biodegradable wastes cannot be broken down into simpler substances, causing their volume to continuously increase and creating challenges for their safe disposal. Some of these wastes, like heavy metals and pesticides, enter the food chain and accumulate at higher trophic levels, leading to harmful effects on organisms. Additionally, non-biodegradable wastes can reduce soil fertility by altering the natural pH balance, affecting plant growth and ecosystem health.

Q. 8. If all the waste we generate is biodegradable, will this have no impact on the environment?

ANSWER:-

Biodegradable wastes are broken down by microorganisms into simpler substances, providing raw materials for producers. However, they can also have negative effects on the environment:

- Slow decomposition of biodegradable waste can release foul smells and harmful gases, which, when inhaled, can cause irritation, nausea, dizziness, and other health issues.
- Decomposing waste can create a breeding ground for harmful organisms, leading to the spread of diseases in animals, plants, and humans.
- An increase in the number of microorganisms in aquatic environments can lead to oxygen depletion in water bodies, harming aquatic life.

Q. 9. Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

ANSWER:-

The ozone layer acts as a protective shield around the Earth, blocking harmful ultraviolet (UV) radiation from the sun. However, air pollutants like chlorofluorocarbons (CFCs) are depleting the ozone layer, allowing more UV radiation to reach the Earth. This increased UV radiation can disrupt ecosystems by affecting plant photosynthesis, harming planktons, and damaging decomposers. In humans, it can lead to health issues such as skin cancer, cataracts, and damage to the immune system. To address this, many developed and developing countries have agreed to follow guidelines set by UNEP (United Nations Environment Programme) to freeze or limit the production of CFCs.