

Science

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(Chapter 15)(Our Environment)
Class - 10

Exercises

Question 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 1:

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

Question 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 2:

- (b) Grass, goat and human

Question 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 3:

- (d) All of the above

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Question 4:

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

Answer 4:

If we kill all the organisms in one trophic level, the transfer of food energy to the next trophic level will stop. This will cause a break in the food chain resulting in ecosystem imbalance. As a result, the organisms of the higher trophic level will also die, while the individuals of the lower trophic level will exhibit enormous growth in their population. Both the conditions will result in ecological upset.

Question 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 5:

Yes, the impact of removing all organisms in a trophic level will be different for different trophic levels. If all the producers are killed, it will cause death or migration of the primary consumers in the ecosystem. In the absence of producers, subsequent level of consumers will also be affected. But if primary consumers are removed, organisms of higher trophic level will die, while those of lower level (producers) show exponential growth much beyond the carrying capacity of the environment. Removal of the organisms in a trophic level will upset the whole ecosystem as all categories of organisms are linked through food chain. The survival of organisms of one trophic level depends on the existence of the members of other trophic level.

Question 6:

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

Answer 6:

Progressive increase in the concentration of non-biodegradable substances in a food chain is called *biological magnification*. The level of these harmful substances will go on increasing from one trophic level to the next. When certain harmful substances enter the food chain at the level of primary producers, they get concentrated many times at each subsequent trophic level.

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Question 7:

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

Answer 7:

Non-biodegradable wastes cannot be broken-down into simpler substances. Their volume keeps on increasing creating the problem of their safe disposal. Some of the non-biodegradable wastes like heavy metals and pesticides enter into the food chain and increases in the upper trophic levels. Non-biodegradable wastes reduce the soil fertility by changing the natural pH balance.

Question 8:

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

Answer 8:

Biodegradable wastes are decomposed by microorganisms into simpler substances themselves and provide raw materials for producers, but they also have adverse effects on the environment:

- Slow decomposition of biodegradable waste will result in the release of foul smell and harmful gases. When inhaled by human beings, they may cause irritation, nausea, giddiness, etc.
- Decomposing waste provides breeding ground for some harmful organisms. Abundance of harmful microorganisms may cause diseases in animals, plants and human beings.
- Increase in the number of microorganisms in aquatic medium will- cause oxygen deficiency in waterbodies.

Question 9:

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

Answer 9:

Ozone layer is a protective shield around the earth. It prevents harmful ultraviolet radiation of the sun from reaching the earth. Air pollutants, like chlorofluorocarbons (CFCs), are causing depletion of ozone layer. This is allowing greater amount of UV radiation to reach the earth. UV radiation can

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upset the ecosystem by affecting photosynthesis in plants, destroying planktons and decomposers. In human beings, UV radiation may cause skin cancer, cataract of eyes and damage to immune system. Several developed as well as developing nations of the world have agreed to sign and obey the directions of TINEP (United Nations Environment Programme) to freeze the production of CFCs or to limit their production to some extent.

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