Date: 25/9/2021

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.

Q2. 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.

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.

Q4. Why are some substances biodegradable and some non-biodegradable?

Q5. Give any two ways in which biodegradable substances would affect the environment.

Q6. Give any two ways in which non-biodegradable substances would affect the environment.

Q7. What are trophic levels? Give an example of a food chain and state the different trophic levels is it.

Q8. What is the role of decomposers in the ecosystem?

Q9. What will happen if we kill all the organisms in one trophic level?

Q10. 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?

Q11. What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

Q12. What are the problems caused by non-biodegradable wastes that we generate?

Q13. If all the waste we generate is biodegradable, will this have no impact on the environment?

Q14. What is ozone and how does it affect any ecosystem?

Q15. How can you help in reducing the problem of waste disposal? Give any two methods.

Q16. Why is damage to the ozone layer a cause for concern? What steps are being taken to limit this damage?

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S1. Groups (a), (c) and (d).

S2. (b)

S3. (d) All of the above.

S4. Substances which are derived from plants or animals can be acted upon by microorganisms (decomposers). Such substances are biodegradable. On the other hand, materials derived from metals, plastics, glass, etc. are not acted upon by microorganisms and hence, are non-biodegradable.

S5. (a) They will serve as breeding ground for flies and mosquitoes which are carriers of diseases like cholera, typhoid and malaria.

(b) They produce foul smell, thus, causing air pollution. If thrown in water, they will cause water pollution.

S6. (a) Excessive use of non-biodegradable pesticides and fertilizers run off with rain water to water bodies causes water pollution.

(b) Non-biodegradable pesticides like DDT enter the food chain and cause biomagnification in human beings and other animals.

S7. Each step in a food chain constitutes a trophic level. Example:

Grass (Trophic level I) $\longrightarrow$ Deer (Trophic level II) $\longrightarrow$ Lion (Trophic level III)

S8. They decompose dead remains of plants and animals and their waste organic products into simple inorganic substances which are released into the atmosphere for reuse by the plants. Thus, they help in recycling of materials.

S9. If we kill all the organisms in one trophic level, the number of individuals in the next trophic level will decrease due to non-availability of food. Also the number of individuals in the previous trophic level will increase because there is no one to feed on them. This will cause imbalance in the environment.

S10. Yes, the impact of removing all the organisms of a trophic level will be different for different trophic levels. The effect will be time related. If we remove all the producers, primary consumers will be affected instantly. Secondary consumers will be affected after a gap and tertiary consumers after a longer gap.

Organisms of any trophic level cannot be removed without causing any damage to the ecosystem.

S11. The phenomenon of progressive increase in concentration of certain harmful non-biodegradable chemicals such as DDT at different levels of food chain is called biological magnification or biomagnifications.

The concentration of harmful chemicals will be different at different trophic levels. It will be lowest in the first trophic level and highest in the last trophic level of the food chain.

S12. (a) Non-biodegradable pesticides and fertilizer run off with rain water to water bodies cause water pollution and affect the soil by making it either acidic or alkaline.

(b) Some of the non-biodegradable pesticides like DDT enter the food chain and cause biomagnification in humans and other animals.

S13. It will have only short term impact on environment. The action of decomposers will slow down and some air/water pollution will be caused. However, in longer term, there will be no impact of biodegradable waste on the environment.

S14. Ozone is a form of oxygen. It has the molecular formula O_3. It is present at a higher level in the atmosphere. It protects the ecosystem from the harmful effects of ultraviolet rays coming from the Sun. Ultraviolet radiations cause skin cancer, cataract and affect our immune system.

S15. The following measures can be adopted for reducing the problem of waste disposal:

(a) Reduce the volume of waste by burning in incinerator.

(b) Produce compost and biogas from biodegradable waste.

S16. Ozone layer stops ultraviolet radiations from the Sun from reaching the Earth. Ultraviolet rays cause cancer, cataract and damage to the immune system of human beings.

In 1987, United Nations Environment Programme (UNEP) succeeded in forging an agreement between nations to freeze chloroflurocarbons (CFCs) production to 1986 levels. CFCs are the main cause of ozone layer depletion.