Home Assignment : Class 10th : Subject- Science

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Chapter 15 –Our Environment

Question 1: What are trophic levels? Give an example of a food chain and state the different trophic levels in it.

ANSWER: Each step or level of the food chain is known as a trophic level. Trophic levels can be broadly classified as Producers; Primary, Secondary and Tertiary Consumers.

An example of a food chain:

Grass----------→ Deer----------→ Lion

(Producer)	(Herbivore)	(Carnivore)
1st Trophic level	2nd trophic level	3rd trophic level

Question 2: What is the role of decomposers in the ecosystem?

ANSWER -Decomposers break down the organic components of dead and decaying matter into simple inorganic substances. The organic matter like dead animal bodies are recycled in the ecosystem thereby cleaning the environment. And, the inorganic elements return back the minerals into the soil making the soil fertile.

Question 3: Why are some substances biodegradable and some non-biodegradable?

ANSWER- Substances that can be broken down by biological processes are said to be biodegradable. In our environment, many of the substances are broken easily by decomposers. Examples: Paper, vegetable peels etc. However, substances which cannot be broken down biologically but by physical means are known as non-biodegradable substances. Example: Plastic.

Question 4: Give any two ways in which biodegradable substances would affect the environment.

ANSWER- (1) These substances on degradation can produce foul smell which affects the population living nearby. They may also become a breeding place for insects.

(2). Many harmful greenhouse gases may evolve during degradation leading to global warming.

Question 5: Give any two ways in which non-biodegradable substances would affect the environment.

ANSWER- (i) Substances like DDT, BHC enter in the food chain and cause biomagnification.

(ii) They cause pollution.

(iii) They also kill useful microorganisms.

Question 6: What is ozone and how does it affect any ecosystem?

ANSWER- Ozone (O_3) is a triatomic molecule of oxygen.

Ozone (O_3) thus forms a layer in the upper atmosphere. It shields the surface of the earth from ultra-violet radiation (UV) coming from sun as these radiations are very harmful causing skin cancer and cataract in humans. It also cause harm to the crops.

Question 7: How can you help in reducing the problem of waste disposal? Give any two methods.

ANSWER- (i) Throwing biodegradable and non-biodegradable waste into separate dustbins so that recycling can be done easily.

(ii) By putting the organic waste into compost pits dug in the ground and preparing compost. This compost helps in increasing the fertility of soil.

(iii) Practicing the 3 R's: Reduce, Reuse and Recycle.

EXERCISE QUESTION ANSWERS

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 (✓)

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

Questiion 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 (✓)

Question 4- What will happen if we kill all the organisms in one trophic level?

ANSWER-If we kill all the organisms of one trophic level it will create an imbalance in the ecosystem.

For example, in a food chain:

Grass----------> Deer----------> Lion

If lions are removed from the above food chain, then population of deer will increase which will cause over-grazing. This will lead to deforestation. It may even lead to soil erosion causing further conversion of fertile land into barren desert.

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

No, the organisms of any trophic level cannot be removed without causing any damage to the ecosystem.

Consider the following example:

Grass → Deer → Lion

1. If all the grass is removed, the deer will die out due to starvation which in turn will wipe out the lions.
2. If all the deer population is removed, the lions will die out due to starvation. The grasses will increase in number and turn the land into forests.
3. If all the lions are removed, the population of deer will keep on increasing which in turn will eat all the grass leaving the land barren.

Question 6- What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?

ANSWER- Biological Magnification is the increase in concentration of harmful substances in the body of the living organism at each trophic level.

Yes, the levels of this magnification is different at different levels of the ecosystem. It is highest at the top most level of the food chain and lowest in first trophic level.

Question 7: What are the problems caused by the non-biodegradable wastes that we generate?

ANSWER- (i) Substances like DDT, BHC enter in the food chain and cause biomagnification.
(ii) They cause pollution.
(iii) They also kill useful microorganisms.

Question 8: If all the waste we generate is biodegradable, will this have no impact on the environment?
ANSWER- If all the waste we generate is biodegradable, this will also have impact on the environment. These waste when not disposed properly releases foul smell which affects the population living nearby. These waste can also become breeding place for mosquitoes and other insects causing spread of diseases.

Question 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 in the stratosphere absorbs the harmful UV rays and thus protect the living beings. If this ozone layer gets depleted, the UV rays may cause cancer in humans and other plants and animals. Thus, damage to the ozone layer is a cause for concern.
In order to limit this damage, the production of CFC's (Cholorofluoro carbons) were stopped in 1986.

Question 10- What is Green House Effect?
ANSWER- The greenhouse effect is a process in which greenhouse gases, like carbon dioxide in the Earth's atmosphere, cause thermal radiation emitted by the Earth's surface to be reflected back down, therefore causing the climate to warm

Question 11-What is Global Warming?
ANSWER-Global warming is a gradual increase in the earth’s temperature generally due to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants