

CBSE Test Paper 01
Chapter 15 Our Environment

1. Which of the following organisms belong to the same trophic level? Plant, snake, insect, frog, hawk, deer **(1)**
 - a. Hawk and deer
 - b. Snake and insect
 - c. Hawk and frog
 - d. Frog and snake
2. The maximum concentration of chemicals get accumulated in: **(1)**
 - a. Human body
 - b. Deer
 - c. Fishes
 - d. Plants
3. What will happen if deer is missing in the given food chain? **(1)**

Grass → Deer → Tiger

 - a. The population of tiger will decrease and the growth of grass will increase.
 - b. The growth of grass will decrease.
 - c. The population of tiger will increase.
 - d. Tiger will start eating grass.
4. In the following groups of materials, which group contains only non-biodegradable materials? **(1)**
 - a. Polythene, Detergent, PVC
 - b. Wood, Paper, Leather
 - c. Plastic, Detergent, Grass
 - d. Plastic, Bakelite, Cloth
5. Match the following with the correct response: **(1)**

(1) Biodegradable	(A) Plastics, detergents, Pesticides etc
(2) Non- biodegradable	(B) Green plants
(3) Decomposers	(C) Bacteria and Fungi

(4) Producers

(D) Dead parts of plants and animals

1. 1-C, 2-B, 3-D, 4-A
 2. 1-D, 2-A, 3-C, 4-B
 3. 1-A, 2-C, 3-B, 4-D
 4. 1-B, 2-D, 3-A, 4-C
6. List the abiotic components of an ecosystem. **(1)**
7. A lake has been polluted by sewage. On comparison with the sample of unpolluted water, the water in the lake is found to have increased contents of some components. Identify these components. **(1)**
8. Name two man-made ecosystem. **(1)**
9. In a food chain comprising lion, grass and deer, which will **(1)**
- i. transfer the maximum amount of energy.
 - ii. receive the minimum amount of energy.
10. What is meant by an artificial ecosystem? Give two examples of artificial ecosystems. **(3)**
11. Write the food chain operating in a freshwater pond. Mention the food habit of each trophic level in this food chain. **(3)**
12. With the help of an example explain how indiscriminate use of pesticides may result in the degradation of the environment. **(3)**
13. Describe how decomposers facilitate recycling of matter in order to maintain balance in the ecosystem. **(3)**
14. What are the problems caused by the non biodegradable wastes that we generate? **(5)**
15. What is pyramid of numbers? Draw pyramid of numbers in case of grassland ecosystem. **(5)**

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Answers

1. d. Frog and snake

Explanation: Frog and snake - both secondary consumers - belong to the same trophic level. Plant is a producer and belongs to the first trophic level. Deer is a herbivore (a primary consumer) and belongs to the second trophic level, Hawk belongs to the last trophic level.

2. a. Human body

Explanation: Pesticides and other chemicals that are used to protect our crops from diseases and pests, do not get degraded, enter the food chain, and get accumulated in human bodies. The human beings occupy the top level in any food chain. Therefore, the maximum concentration of the chemicals is in the human body. This phenomenon is known as biological magnification.

3. a. The population of tiger will decrease and the growth of grass will increase.

Explanation: If deer is missing from the given food chain, the population of tiger will decrease and the growth of grass will increase.

4. a. Polythene, Detergent, PVC

Explanation: Substances that are not broken down into simpler substances by biological processes are said to be non-biodegradable. Polythene, detergents and PVC (Polyvinylchloride) are non-biodegradable substances. Substances that can be broken down by biological processes are said to be biodegradable. Paper, wood, grass, leather and cloth are biodegradable.

5. b. 1-D, 2-A, 3-C, 4-B

Explanation: Substances that are broken down by biological processes are said to be biodegradable. Dead parts of plants and animals are biodegradable. Substances that are not broken down are said to be non-biodegradable. Plastics, detergents, and pesticides are non-biodegradable. Bacteria and fungi are decomposers. Green plants (autotrophs) are producers.

(1) Biodegradable	
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	(D) Dead parts of plants and animals
(2) Non- biodegradable	(A) Plastics, detergents, pesticides, etc
(3) Decomposers	(C) Bacteria and fungi
(4) Producers	(B) Green plants

6. The abiotic components of an ecosystem are of two types:
 - i. Climate including temperatures, light, wind, gases, humidity, rain and water (also wave action, water currents)
 - ii. Edaphic including soil, substratum, topography, background, minerals and pH.
7. Sewage usually contains organic substances such as house hold waste, animal waste etc. The decomposition of these substances by decomposers increases nitrogenous compounds in water and leads to water pollution.
8.
 - i. Crop fields
 - ii. Garden are man-made ecosystem.
9.
 - i. Grass will transfer maximum amount of energy as it lies at lowest trophic level.
 - ii. Lion will transfer minimum amount of energy as it lies at top most trophic level.
10. Man-made ecosystem are called artificial ecosystem. For example- Garden, Aquarium.
11. Phytoplankton → copepods → small fish → large fish
 In this simple food chain of freshwater pond, large fish is the top consumer, small fish is the secondary consumer and the copepods are the primary consumers and phytoplankton are the producers which are autotrophs, which lies at the beginning of the food chain.
12. Indiscriminate use of pesticides may result in the degradation of the environment. Pesticides are non biodegradable. For example, DDT is an organic pesticide which is used to kill pests in crop fields. When it is sprayed in large quantity it can be passed along the food chain from crops to man or other animals and birds. As it is non biodegradable, its concentration will progressively increase at each trophic level leading to Biomagnification. Also in birds DDT causes thinning of egg shells & premature hatching of eggs often leading to the death of the chicks.

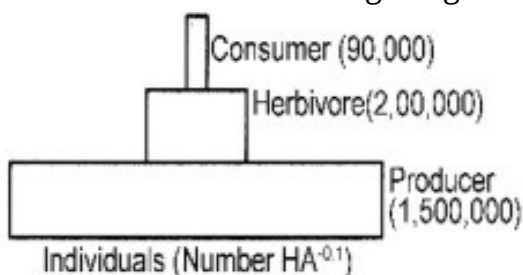
13. Decomposers are micro organisms that obtain energy from the chemical breakdown of dead organisms of animals or plants. These micro organisms breakdown the complex organic substance of dead organisms into simple inorganic substances that go into the soil and are used up once more by the plants. Decomposers thus, help in recycling of matter.

14. The problems caused by non-biodegradable wastes are as follows :

- i. Non-biodegradable solid waste is great environmental hazard.
- ii. Plastic and their waste products such as carry bags, waste glasses, bottles, cups, plates are most dangerous. They choke in drain.
- iii. They prevent growth of vegetation when dumped underground.
- iv. They cause soil pollution and degrade the soil.
- v. Non-biodegradable substances may be inert and simply persist in the environment for a long time and may harm various members of the ecosystem.
- vi. The plastic wastes when mixed with municipal waste make them unfit for recycling.

15. The relationship between the number of producers, primary, secondary and tertiary consumers constitute the pyramid of numbers. The pyramid of numbers depicts the relationship in terms of the number of producers, herbivores and the carnivores at their successive trophic levels. There is a decrease in the number of individuals from the lower to the higher trophic levels. The number pyramid varies from ecosystem to ecosystem. There are three of pyramid of numbers:

In this case, the number decreases above the producer level and upright pyramid is formed as shown in the figure given above.



- Upright pyramid of number
- Partly upright pyramid of number and
- Inverted pyramid of number.