# WORKSHEET 1

## CHAPTER 6 – OUR ENVIRONMENT

### A. Tick (✓) the correct option.

1. An ecosystem consists of
   a. non-living things only.
   b. living organisms only.
   c. both living and non-living things.
   d. water, gases and soil.
2. Which of the following represents an artificial ecosystem?
   a. Forest
   b. Aquarium
   c. Lake
   d. Pond
3. The flow of energy in an ecosystem is
   a. unidirectional.
   b. bidirectional.
   c. multidirectional.
   d. cyclic.
4. If 10 kilocalories of energy is available to snakes (fourth trophic level), what will be the energy available at the producer level in the following food chain?

   Grass → Grasshopper → Frog → Snake

   a. 100 kilocalories
   b. 1000 kilocalories
   c. 1 kilocalorie
   d. 10,000 kilocalories
5. Which of the following contain only non-biodegradable things?
   a. Leaves, wood, plastics
   b. Polythene, aluminium can, mercury
   c. DDT, cowdung, fruit peels
   d. Kitchen waste, sewage, pen

### B. Fill in the blanks.

1. Substances that are broken down by biological processes are called _____
2. _____ constitute the first trophic level.
3. _____ is the ultimate source of energy in an ecosystem.
4. In a grassland ecosystem, a hawk represents the _____
5. A position in a food chain is called a _____

### C. State true (T) or false (F).

1. There is a progressive increase in energy level in successive trophic levels.
2. Aquarium cannot be treated as an ecosystem.
3. DDT is a non-biodegradable substance.
4. The frog that eats the grasshopper is a secondary consumer.
5. Herbivores are secondary consumers.

### D. Match the following.

| | |
|---|---|
| 1. Garden | (*a*) bacteria and fungi |
| 2. Lake | (*b*) grasshopper |
| 3. Decomposers | (*c*) plants and animals |

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4. Biotic components
5. Primary consumer

(*d*) artificial ecosystem
(*e*) natural aquatic ecosystem

**E. Answer the following questions.**

1. Where are CFC found?
2. Why is improper disposal of waste harmful to environment?
3. Draw diagram to represent a common food chain in a grassland ecosystem.
4. Explain why a food chain usually cannot have more than three or four trophic levels?
5. (*a*) How is energy introduced into the ecosystem?

   (*b*) Consider the following food chains.

   (*i*) Plants → mice → snakes → hawks

   (*ii*) Plants → mice → hawks

   If energy available at the producer level in both the food chains is 100 J, in which case will hawks get more energy as food and by how much? Justify your answer.

# ANSWERS

## WORKSHEET 1

### A. Tick (✓) the correct option.

1. c
2. b
3. a
4. d
5. b

### B. Fill in the blanks.

1. Biodegradable substances
2. Producers
3. Sun
4. Top consumer
5. Trophic level

### C. State true (T) or false (F).

1. F
2. F
3. T
4. T
5. F

### D. Match the following.

1. (*d*)
2. (*e*)
3. (*a*)
4. (*c*)
5. (*b*)

### E. Answer the following questions.

1. CFC are found in fire extinguisher of refrigerants like air conditioner.
2. Wastes pollute our environment, air, water and soil, and cause harmful effects on all living organisms. Wastes have biodegradable as well as non-biodegradable components. Improper disposal of biodegradable wastes result in production of foul smell, spread of diseases like diarrhoea, cholera, tuberculosis, etc., and they can also block the drains, creating pools of water which become breeding ground of mosquitoes and spread diseases like malaria and dengue. Improper disposal of non-biodegradable waste may lead to their entry in food chain which will have harmful effects on humans and other animals. Non-biodegradable waste like polythene, if accidentally, eaten by animals can lead to their death.
3. Grass → Grasshopper → Frog → Snake → Eagle
4. There is a continuous loss of energy at each trophic level of a food chain. At each successive level, the energy available is 10% of the previous level. So, the amount of energy is decreasing at each trophic level and after 3-4 steps negligible energy will be available to be transferred to the next trophic level. Hence, a food chain usually cannot have more than three or four steps.
5. (a) Energy is introduced into the ecosystem through sun. Solar energy is converted into chemical energy by the process of photosynthesis in green plants or producers which is consumed directly or indirectly by the consumers.

   (b) The hawk will get more energy in the second case. In the first which is a 4 step food chain, the hawk will get 0.1 J of energy as per ten per cent law. While in the second case, which is a 3 step food chain, the hawk gets 1 J of energy. Hence, shorter food chain having lesser number of trophic level, which are close to producer get more energy.