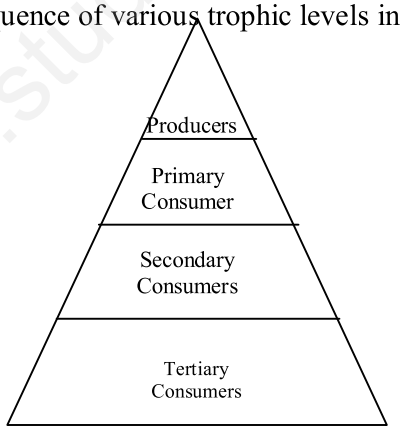
CHAPTER – 15
OUR ENVIRONMENT

HOTS Questions and Answers

Q.1 Why some substances are degraded and others not?
Q2. What limits the number of trophic levels in a food chain.
Q3. What will happen if decomposers are not there in the environment?
Q4. What is the harm of clay cups?
Q5. What will happen if all the carnivores are removed from the earth?
Q6. What will happen to grasslands if all the grazers are removed from there?
Q7. The number of malarial patients in a village increase tremendously, when a large number of frogs were exported from the village. What could be the cause for it? Explain the help of food chain?
Q8. State one reason to justify the position of man at the apex of most food chains?
Q9. Which food chains are advantageous in terms of energy?
Q10. Construct a food chain composing the following Snake, Hawk, Rats, Plants.
Q11. Name the process that is a direct outcome of excessive burning of fossil fuels?
Q12. If all the wastes we generate is bio-degradable what impact may this have on the environment?
Q13. Write the harmful effect of ozone depletion.
Q14. Why food chains consists of three or four steps only?
Q15. Which of the following will have the maximum concentration of harmful chemicals in its body?
Peacock, Frog, Grass, Snake, Grasshopper
Q16. Why energy of herbivores never come back to the autotrophs?
Q17. What are decomposers and what is the importance of them in the ecosystem?
Q18. Give the correct sequence of various trophic levels in a food chain.



Q19. What is biological magnification and give its causes?
Q20. Are plants actually producers of energy?

ANSWERS

Ans-1. Different components of food are changed to simpler substances by digestive enzymes and these enzymes are very much specific in nature and action. Similarly, substances are broken down by bacteria and saprophytes. They are also very specific

in action and break down of the particular substance. Therefore, some substances are biodegradable and other are non-biodegradable.

Ans-2. There is a loss of energy as we go from one trophic level to the next, this limits the number of trophic levels in a food chain.

Ans-3. If decomposers are not there in the environment, the breakdown of the complex organic substances into simple substances will not take place and natural replenishment of the soil will not take place. So, presence of decomposers is essential for the replenishment of soil and biogeochemical cycle of elements or substances.

Ana-4. Clay cups cause depletion of top fertile soil as they are formed from the same.

Ans-5. If all the carnivores are removed from the earth, the population of herbivores will increase. Large population of herbivores will overgraze. As a result, all plants will disappear from the earth surface and ultimately the earth may become a desert. The biosphere will get disturbed which will lead to end of life on earth.

Ans-6. If all the grazers are removed from grassland, grass will grow unchecked. It may help the growth of some organisms harmful to the animals and the animals which feed on the grazers will die of starvation. The biogeochemical cycle will stop and the whole biosphere will get disturbed.

Ans-7. Phytoplankton → Zooplankton → Mosquito larva → Frog

In the absence of frog, more mosquito larva survive, giving rise to large number of mosquitoes which cause increase incidence of malaria.

Ans-8. The position of man is at the apex of most food chains as he is an intelligent organism and can take any advantageous position by manipulation.

Ans-9. The two step chains in which man is close to producer are advantageous. For example, Producer → Man

Ans-10. Plants → Rats → Snake → Hawks

Ans-11. Global warming is a direct outcome of excessive burning of fossil fuels.

Ans-12.Cleaner environment without any pollution, more nutrients will be released into the nutrient pool, will help to maintain ecological balance.

Ans-13.1. Cause the skin cancer
2. Damage to eyes
3. Immune system

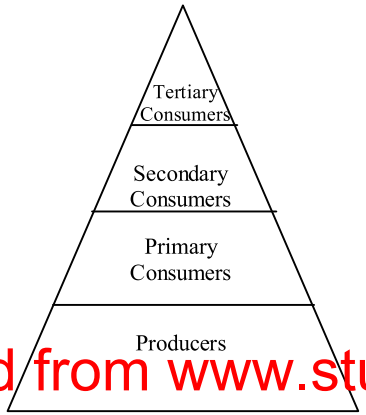
Ans-14Since so little energy is available for the next level of consumers and for this reason food generally consists of three or four steps. The loss of energy at the each step is so great that very little usable energy remains after four tropic levels.

Ans-15.Grass → Grasshopper → Frog → Peacock
Peacock will have maximum conc.

Ans-16.Energy of herbivorous never comes back to autotrophs as flow of energy is always unidirectional. So once it passes the trophic level it is no longer available to the previous level.

Ans-17.The micro-organisms which break down the complex organic substances into simple inorganic substances e.g. bacteria, fungi. Decomposers decompose the complex substances into simple ones so that plants can use it again

Ans-18.



Ans-19.The increased concentration of chemicals at any trophic level is called biological magnification. It occurs due to the excessive use of pesticides which enter our food chain.

Ans- 20. No, plants are not actually producers of energy, they can trap the energy of sun and can convert solar energy into chemical energy in the form of carbohydrates and other food materials so they are called transducers.

QUESTION BANK FOR PRACTICE

Q1. During heavy rains in a village, the rain water carried excessive nitrogen compounds to a pond. How will it affect the growth of fish in the pond in the long run?

Q2. Which of the following materials are non-biodegradable? Aluminum wire, tea leaves, synthetic fibres, wool

Q3. In comparing the two ecosystems A & B it is observed that A has only first and second order consumers while B has third, fourth and fifth order consumers. Which of the two could be more stable?

Q4. What name has been given to those organisms which breakdown the complex organic compounds present in dead animals and plants?

Q5. Which of the following constitutes a food chain?

a) Grass, wheat and mango b) Grass, goat and human

c) Goat, cow and elephant d) Grass, fish and goat

Q6. Vegetarian food habit can sustain a larger number of people. Justify the statement in terms of food chain.

Q7. Which of the following belong to the same trophic level?

Tree, Frog, Snake, Grass, Lizard

Q8. Give any two ways in which non-biodegradable substances would affect the environment.

Q9. How does study of food chain in an area or habitat help us.

Q10. What percentage of energy, available at the producer level is transferred at successive trophic levels in a food chain?

Q11. A non-biodegradable toxic chemical has entered into a food chain. Which type of food habit will you suggest to a man? Vegetarian or Non-vegetarian.

Q12. Name two waste materials, which can be recycled?

Q13. Explain why, the practice of serving tea in Kulhads (disposable cups made of clay) on trains has been discontinued?

Q14. Explain why there are greater chances of accumulation of harmful chemicals in the body of human being.

Q15. The use of pesticide DDT is discouraged since this chemical is found in human body. How does this chemical enter our body?

Q16. What will happen if we kill all the organisms in one trophic level?

Q17. Consider the following food chains:

1. Plants → Mice → Snake → Hawks
2. 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.

Q18. How much energy will be available to hawks in the food chain comprising hawk, snake, paddy and mice, if 10,000 J of energy is available to paddy from the sun?

Q19. Calculate the amount of energy available to lion in the following food chain if plants have 20000 J of energy available from the sun.

Plant ⟶ Deer ⟶ Lion.

Q20. In the food chain Grass ⟶ Deer ⟶ Lion, operating in a forest, what will happen,

1) If all the lions are removed?
2) If all the deer are removed?
3) If all the grass is removed?

Q21. What are the various methods of waste disposal practiced in your school? Describe any 2 methods briefly.

Q22. All the flesh of a carnivore is from grass. Justify the statement.

Q23. Explain the following terms

1) Acid Rain 2) Ozone depletion 3) Green house effect.