Our Environment

Class: X **Biology**

1. Which one of the following is an artificial ecosystem?

(a) Pond

(b) Crop field

(c) Lake

(d) Forest

Ans. (b) Crop field

2. In a food chain, the third trophic level is always occupied by

(a) carnivores

(b) herbivores

(c) decomposers

(d) producers

Ans. (a) carnivores

3. An ecosystem includes

(a) all living organisms

(b) non-living objects

(c) both living organisms and non-living objects

(d) sometimes living organisms and sometimes non-living objects

Ans. (c) both living organisms and non-living objects

4. In the given food chain, suppose the amount of energy at the fourth trophic level is 5 kJ, what will be the energy available at the producer level?

Grass → Grasshopper → Frog → Snake → Hawk

(a) 5 k J

(b) 50 k J

(c) 500 k J

(d) 5000 k J

Ans. (d) 5000 k J

5. Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as

(a) eutrophication

(b) pollution

(c) biomagnification

(d) accumulation

Ans. (c) biomagnification

6. Depletion of ozone is mainly due to

(a) chlorofluorocarbon compounds

(b) carbon monoxide

(c) methane

(d) pesticides

Ans. (a) chlorofluorocarbon compounds

7. Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called

(a) decomposers

(b) producers

(c) herbivores

(d) carnivores

Ans. (b) producers

8. In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of

(a) heat energy

(b) light energy

(c) chemical energy

(d) mechanical energy

Ans. (c) chemical energy

9. Organisms of a higher trophic level which feed on several types of organisms belonging to a lower trophic level constitute the

(a) food web

(b) ecological pyramid

(c) ecosystem

(d) food chain

Ans. (a) food web

10. Flow of energy in an ecosystem is always

(a) unidirectional

(b) bidirectional

(c) multidirectional

(d) no specific direction

Ans. (a) unidirectional

11. Excessive exposure of humans to U V-rays results in

(i) damage to the immune system

(ii) damage to lungs

(iii) skin cancer

(iv) peptic ulcers

(a) (i) and (ii)

(b) (ii) and (iv)

(c) (i) and (iii)

(d) (iii) and (iv)

Ans. (c) (i) and (iii)

12. In the following groups of materials, which group (s) contains only non-biodegradable items?

(i) Wood, paper, leather

(ii) Polythene, detergent, PVC

(iii) Plastic, detergent, grass

(iv) Plastic, bakelite, DDT

(a) (iii)

(b) (iv)

(c) (i) and (iii)

(d) (ii) and (iv)

Ans. (d) (ii) and (iv)

13. Which of the following limits the number of trophic levels in a food chain?

(a) Decrease in energy at higher trophic levels

(b) Sufficient food supply

(c) Polluted air

(d) Water

Ans. (a) Decrease in energy at higher trophic levels

14. Which of the statement is incorrect?

(a) All green plants and blue-green algae are producers

(b) Green plants get their food from organic compounds

(c) Producers prepare their own food from inorganic compounds

(d) Plants convert solar energy into chemical energy

Ans. (b) Green plants get their food from organic compounds

15. Which group of organisms are not constituents of a food chain?

(i) Grass, lion, rabbit, wolf

(ii) Plankton, man, fish, grasshopper

(iii) Wolf, grass, snake, tiger

(iv) Frog, snake, eagle, grass, grasshopper

(a) (i) and (iii)

(b) (iii) and (iv)

(c) (ii) and (iii)

(d) (i) and (iv)

Ans. (c) (ii) and (iii)

16. The percentage of solar radiation absorbed by all the green plants for the process of photosynthesis is about

(a) 1 %

(b) 5 %

(c) 8 %

(d) 10 %

Ans. (a) 1 %

17. In the given Figure 15.1 the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available?

(a) T4

(b) T2

(c) T1

(d) T3

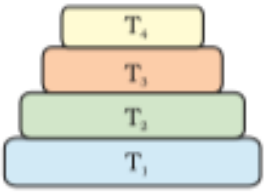

Fig. 15.1

Ans. (c) T1

18. What will happen if deer is missing in the food chain given below?

Grass → Deer → Tiger

(a) The population of tiger increases

(b) The population of grass decreases

(c) Tiger will start eating grass

(d) The population of tiger decreases and the population of grass increases

Ans. (d) The population of tiger decreases and the population of grass increases.

19. The decomposers in an ecosystem

(a) convert inorganic material, to simpler forms

(b) convert organic material to inorganic forms

(c) convert inorganic materials into organic compounds

(d) do not breakdown organic compounds

Ans. (b) convert organic material to inorganic forms

20. If a grasshopper is eaten by a frog, then the energy transfer will be from

(a) producer to decomposer

(b) producer to primary consumer

(c) primary consumer to secondary consumer

(d) secondary consumer to primary consumer

Ans. (c) primary consumer to secondary consumer

21. Disposable plastic plates should not be used because

(a) they are made of materials with lightweight

(b) they are made of toxic materials

(c) they are made of biodegradable materials

(d) they are made of non-biodegradable materials

Ans. (d) they are made of non-biodegradable materials

Short Answer Questions

22. Why is improper disposal of waste a curse to the environment?

Wastes pollute our environment, air, soil and water, and cause harmful effects on all living organisms.

23. Write the common food chain of a pond ecosystem.

Phytoplanktons

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Small aquatic animals, larvae, shrimps, Insects

↓

Fish

↓

Bird

24. What are the advantages of cloth bags over plastic bags during shopping?

Advantages of cloth bags over plastic bags during shopping are as follows

They can carry more things

They are bio-degradable

They can be reused.

25. Why are crop fields known as artificial ecosystems?

Crops field are known as artificial ecosystems because they are manmade where certain biotic and abiotic components are manipulated.

26. Differentiate between biodegradable and non-biodegradable substances. Cite examples.

Substances which can be broken into pieces by the biological process are known as biodegradable substance.

Substances which cannot be broken into pieces by the biological process are known as non-biodegradable substance.

27. Suggest one word for each of the following statements/ definitions

(a) The physical and biological world where we live in

(b) Each level of the food chain where the transfer of energy takes place

(c) The physical factors like temperature, rainfall, wind and soil of an ecosystem

(d) Organisms which depend on the producers either directly or indirectly for food

(a) Environment
(b) Trophic level
(c) Abiotic factors
(d) Consumers or heterotrophs

28. Explain the role of decomposers in the environment?

Decomposers breakdown dead and decaying living matter and helps in the nutrient recycling. This will clean the environment by removing dead material.

29. Select the mismatched pair in the following and correct it.

(a) Biomagnification-Accumulation of chemicals at the successive trophic levels of a food chain

(b) Ecosystem - Biotic components of environment

(c) Aquarium - A man-made ecosystem

(d) Parasites - Organisms which obtain food from other living organisms

Ans. (b) Ecosystem-Biotic components of environment

30. We do not clean ponds or lakes, but an aquarium needs to be cleaned. Why?

An aquarium is an artificial ecosystem which is incomplete ecosystem when compared to pond or lake which is a natural and complete ecosystem.

31. What are decomposers? What will be the consequence of their absence in an ecosystem?

Microorganisms comprising bacteria and fungi, break-down the dead remains and waste products of organisms.

These microorganisms are the decomposers as they break-down the complex organic substances into simple inorganic substances that go into the soil and are used up once more by the plants.

If decomposers were absent in the ecosystem, recycling of material in the biosphere will not take place which would lead to the accumulation of dead plants and animals in the environment.

Additionally, the environment would be finally devoid of all its resources which are needed to maintain and sustain life.

32. Suggest any four activities in daily life which are eco-friendly

Using of bicycles and electrical bikes instead of vehicles run by fossil fuels.

Avoid using plastic bags, instead we can use bags made of clothes and papers.

Switching of lights, ACs, fans when they are not required.

Not wasting the paper.

Planting trees in our surroundings.

33. Name the wastes which are generated in your house daily. What measures would you take for their disposal?

Wastes generated in our house daily are as follows

(a) Kitchen wastes

(b) Paper wastes like newspapers, bags, envelopes

(c) Plastic bags

(d) Vegetable/fruit peels/rind Measures for disposal

Measures to take disposing of house waste are;

(a) Segregation of biodegradable and non-biodegradable wastes.

(b) Safe disposal of plastic bags.

(c) Vegetable/fruit peels can be placed near trees/plants, which on decomposition will enrich the soil with nutrients.

(d) Give paper wastes for recycling.

(e) Prepare a compost pit for kitchen wastes.

34. Suggest suitable mechanism (s) for waste management in fertilizer industries.

To manage waste in the fertilizer industry following steps must be taken:

For control of gaseous pollutants combustion equipments are used which can be oxidised. The pollutants are exposed to a high temperature in the process.

Air pollutants, such as certain gases and vapour and inflammable compounds are controlled through the use' of adsorption equipments.

Adsorption is a surface phenomenon, and it needs the presence of a large solid surface area.

This process removes toxic and odoriferous compounds are efficiently.

Three options available for controlling the effluents are:

Control can take place at the point of generation within the factory.

Waste water can be pre-treated before discharging into municipal treatment systems.

Waste water can be treated completely at the factory and either reused or discharged directly for receiving water.

35. What are the by-products of fertilizer industries? How do they affect the environment?

The most common byproduct of fertilizer industries are oxides of nitrogen and sulphur. They pass into the atmosphere and spread to all nearby places.

The gases have a corrosive effect on several items besides being harmful to living beings.

They also give rise to acid rain. Acid rain is highly destructive to forests, crops and aquatic biota.

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36. Explain some harmful effects of agricultural practices on the environment.

Following are the harmful effects of agricultural practices on the environment

Soil degradation Extensive cropping causes loss of soil fertility.

Also, over time it can lead to soil erosion and finally to desertification.

Pollution

Use of synthetic fertilizers and pesticides leads to soil, water and air pollution. •

Water shortage

Excess use of groundwater for agriculture lowers the water level. This results in acute water shortage at many places.

Bio-magnification

The chemical pesticides, being non-biodegradable accumulate in organisms in increasing amounts at each trophic level.

Deforestation

Indiscriminate cutting of trees for agriculture has resulted in loss of habitat for wildlife. Thus, it also causes damage to the natural ecosystem.

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