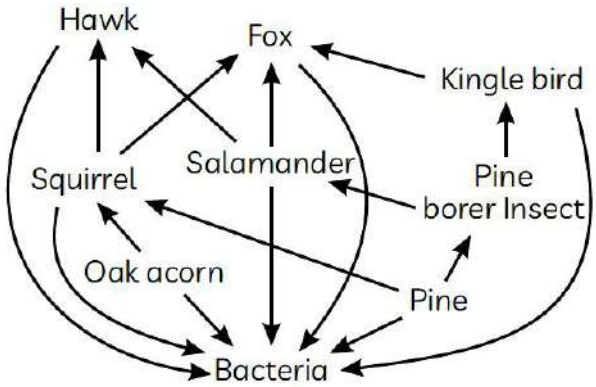
PRACTICE PAPER 13
CHAPTER 13 OUR ENVIRONMENT

SUBJECT: SCIENCE **MAX. MARKS : 40**
CLASS : X **DURATION : 1½ hrs**

General Instructions:
(i). **All** questions are compulsory.
(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.
(iii). **Section A** comprises of **10 MCQs** of **1 mark** each. **Section B** comprises of 4 questions of **2 marks** each. **Section C** comprises of 3 questions of **3 marks** each. **Section D** comprises of 1 question of **5 marks** each and **Section E** comprises of 2 Case Study Based Questions of **4 marks** each.
(iv). There is no overall choice.
(v). Use of Calculators is not permitted

SECTION – A
Questions 1 to 10 carry 1 mark each.

1. According to the image showing a food web:



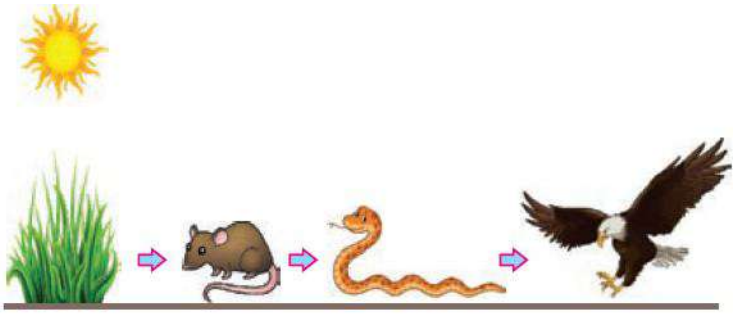
(a) Fox feeds on hawk to obtain energy.
(b) Hawk feeds on oak acorn to obtain energy.
(c) Squirrel feeds on pine borer to obtain energy.
(d) Salamander feeds on pine borer to obtain energy.

2. Disposable plastic plates should not be used because:
(a) they are made of materials with light weight.
(b) they are durable.
(c) they are made of biodegradable materials.
(d) they are made of non-biodegradable materials.

3. In the given food chain, suppose the amount of energy at fourth trophic level is 5 kJ, what will be the energy available at the producer level?
Grass → Grasshopper → Frog → Snake → Hawk
(a) 5 kJ (b) 50 kJ (c) 500 kJ (d) 5,000 kJ

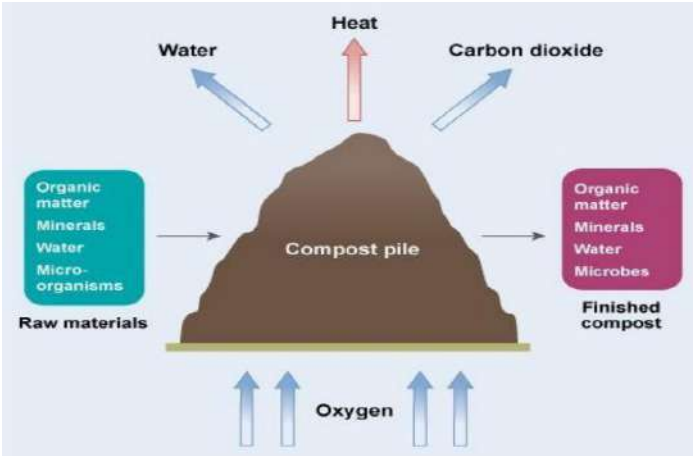
4. In 1987, an agreement was formulated by the United Nations Environment Programme (UNEP) to freeze the production of "X" to prevent depletion of "Y". "X" and "Y" respectively referred here are:
(a) Ozone; CFCs (b) CFCs; rays UV
(c) CFCs; Ozone (d) UV rays; Diatomic oxygen

5. Which of these statements would be correct if the population of snakes is greatly increased?



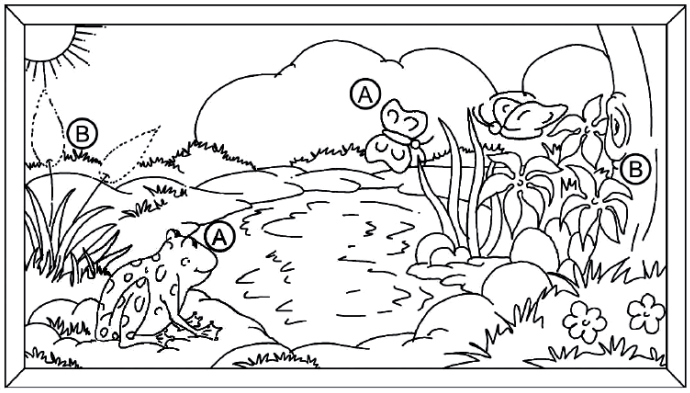
(a) Population of green plants will decrease.
(b) Population of mice will decrease.
(c) Population of snakes will decrease.
(d) Population of hawk will decrease. Ap

6. Composting is the process where organic wastes are degraded into compost. The diagram shows the details of the process.



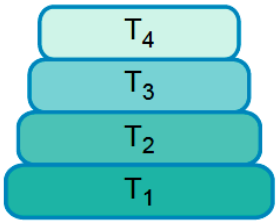
What can be concluded from the diagram?
(a) Composting helps in recycling plastic scraps.
(b) Composting absorbs heat from the environment.
(c) Composting takes place only in the presence of oxygen.
(d) Composting takes place in the presence of either oxygen or carbon dioxide.

7. An ecosystem is represented in the figure given above. This ecosystem will be selfsustaining if



(a) the type of organisms represented by B are eliminated.
(b) materials cycle between the organisms labelled A and the organisms labelled B.
(c) the organisms labelled A outnumber the organisms labelled B.
(d) the organisms labelled A are equal in number to the organisms labelled B.

8. In the given figure alongside the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available?



(a) T_4 (b) T_2 (c) T_1 (d) T_3

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

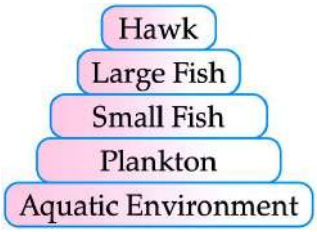
9. **Assertion (A):** Food chain is responsible for the entry of harmful chemicals in our bodies.
Reason (R): The length and complexity of food chains vary greatly.

10. **Assertion (A):** Omnivores receive 10% of their energy from the trophic level below them.
Reason (R): An omnivore is always in the trophic level just above herbivores.

SECTION – B

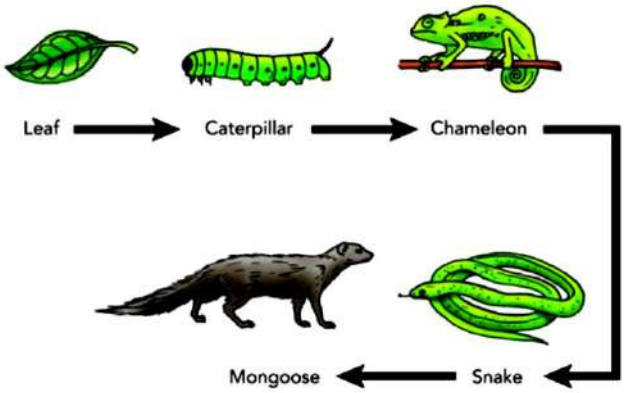
Questions 11 to 14 carry 2 marks each.

11. DDT was sprayed in a lake to regulate breeding of mosquitoes. How would it affect the trophic levels in the following food chain associated with a lake? Justify your answer.



OR

Study the food chain given below and answer the questions that follow:



(a) If the amount of energy available at the third trophic level is 100 joules, then how much energy will be available at the producer level? Justify your answer.
(b) Is it possible to have 2 more trophic levels in this food chain just before the fourth trophic level? Justify your answer.

12. How does improper disposal of biodegradable substances would affect the environment?

OR

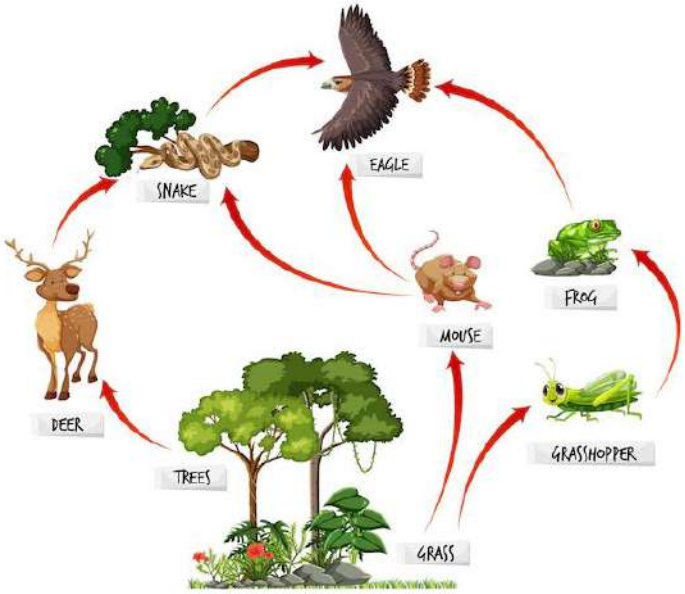
Why should biodegradable and nonbiodegradable wastes be discarded in two different dustbins?

13. Give two examples of decomposers. State their important role in nature.

14. (i) Create a terrestrial food chain depicting four trophic levels.
(ii) Why do we not find food chains of more than four trophic levels in nature?

OR

Study the food web shown below.



(a) Identify and write the food chain from the food web shown, in which the eagle will receive the highest percentage of the energy from the producers.
(b) Which organism will be the most affected when a non-biodegradable pesticide is introduced into the soil? What is the phenomenon responsible for this called?

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Plastic cups were used to serve tea in trains in early days- these could be returned to the vendors, cleaned and reused. Later, Kulhads were used instead of plastic cups. Now, paper cups are used for serving tea. What are the reasons for the shift from Plastic to Kulhads and then finally to paper cups?

16. (a) Explain the role of UV radiation in producing ozone layer.
(b) Mention the reaction involved.
(c) Why is excessive use of CFCs a cause of concern?

OR

(a) Construct a food chain of four trophic levels comprising the following:
Hawk, snake, plants, rat.
(b) 20,000 J of energy was transferred by the producers to the organism of second trophic level. Calculate the amount of energy that will be transferred by organisms of the third trophic level to the organisms of the fourth trophic level.

17. What is trophic level? Why are autotrophs considered to be at the first trophic level of all food chains? State the reason for limited number of trophic levels in nature.

OR

How can we help in reducing the problem of waste disposal? Suggest any three methods.

SECTION – D

Questions 18 carry 5 marks.

18. How is ozone formed in the higher levels of the atmosphere? Why is damage to the ozone layer a cause for concern? What are its causes and what steps are being taken to limit this damage? Write one harmful effect of ozone depletion.

OR

(a) Why does a kitchen garden called an artificial ecosystem while a forest is considered to be a natural ecosystem?

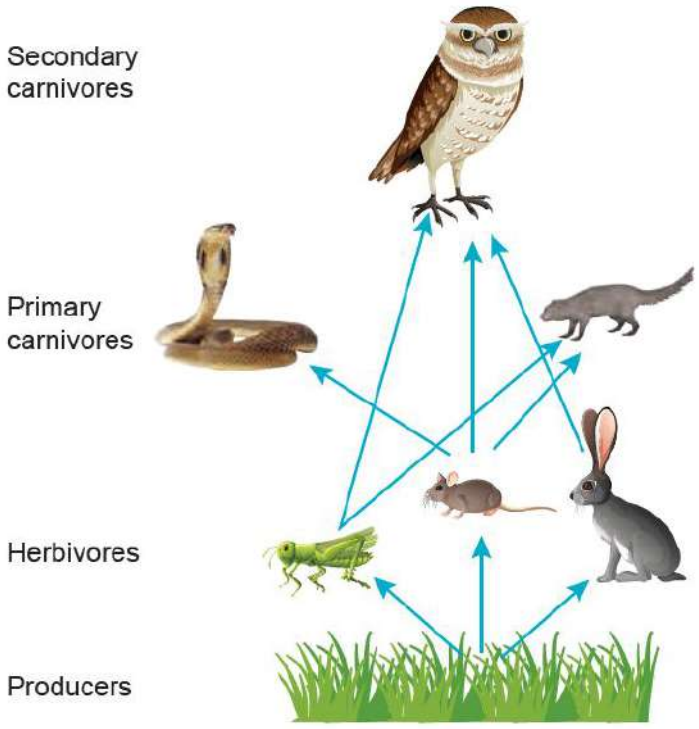
(b) While designing an artificial ecosystem at home, write any two things to be kept in mind to convert it into a self-sustaining system. Give reason to justify your answer.

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Food chains are very important for the survival of most species. When only one element is removed from the food chain it can result in extinction of a species in some cases. The foundation of the food chain consists of primary producers.

Primary producers, or autotrophs, can use either solar energy or chemical energy to create complex organic compounds, whereas species at higher trophic levels cannot and so must consume producers or other life that itself consumes producers. Because the sun's light is necessary for photosynthesis, most life could not exist if the sun disappeared. Even so, it has recently been discovered that there are some forms of life, chemotrophs, that appear to gain all their metabolic energy from chemosythesis driven by hydrothermal vents, thus showing that some life may not require solar energy to thrive.



Food Web

(a) If 10,000J of solar energy falls on green plants in a terrestrial ecosystem, what percentage of solar energy will be converted into food energy?

(b) In which trophic level, do rats fall in this food chain?

(c) (i) If 10J of energy is available to snake, how much energy will be available from snake to owl?

(ii) Mr. X is eating curd/yogurt. For this food intake in a food chain, in which level he should be considered as occupying?

OR

(c) Why do the number of trophic levels is limited to 3 or 4?

20. Every living thing plays a role in the food chain and Earth's ecosystems, and the extinction of certain species, whether predators or prey, can leave behind significant impacts. Since the origin of life on Earth, it's fair to say that more species have gone extinct than are currently alive now. Extinction itself is part of the normal course of evolution. The effect of a species would have if it

were to fade from existence depends largely on its role in the ecosystem. Predators, for example, are often the first to be threatened by hunting or competition with people and resources. When a predator goes extinct, all of its prey are released from that predation pressure, and they may have big impacts on ecosystems. The loss of a predator can result in what is called a trophic cascade, which is an ecological phenomenon triggered by a predator's extinction that can also impact populations of prey, which can cause dramatic ecosystem and food web changes. If there are too many deer, for example, they can really change the ecosystem because they can destroy forests, and they also carry disease.

(a) What is an ecosystem?
(b) List two man-made ecosystems.
(c) What will be the impact if all the organisms of one trophic level die? Give any one effect.

OR

(c) Justify the statement; 'All the flesh of a carnivore is grass'.

PRACTICE PAPER 13
CHAPTER 13 OUR ENVIRONMENT
(ANSWERS)

SUBJECT: SCIENCE **MAX. MARKS : 40**

CLASS : X **DURATION : 1½ hrs**

General Instructions:

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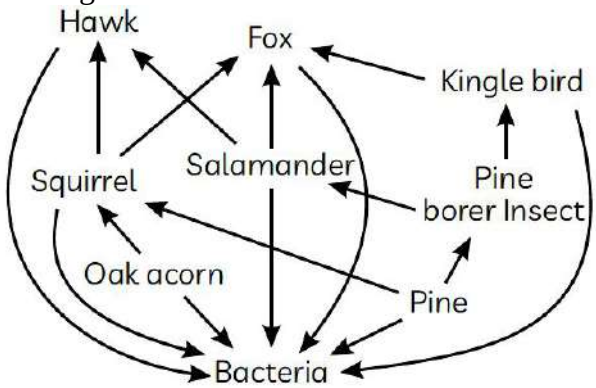
(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.
(iii). **Section A** comprises of **10 MCQs** of **1 mark** each. **Section B** comprises of 4 questions of **2 marks** each. **Section C** comprises of 3 questions of **3 marks** each. **Section D** comprises of 1 question of **5 marks** each and **Section E** comprises of 2 Case Study Based Questions of **4 marks** each.
(iv). There is no overall choice.
(v). Use of Calculators is not permitted

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. According to the image showing a food web:



(a) Fox feeds on hawk to obtain energy.
(b) Hawk feeds on oak acorn to obtain energy.
(c) Squirrel feeds on pine borer to obtain energy.
(d) Salamander feeds on pine borer to obtain energy.
Ans. (d) Salamander feeds on pine borer to obtain energy.
Organisms of a higher trophic level feed on several types of organisms belonging to a lower trophic level, which constitutes the food web. In the food web, an organism can consume two or more organisms as food.

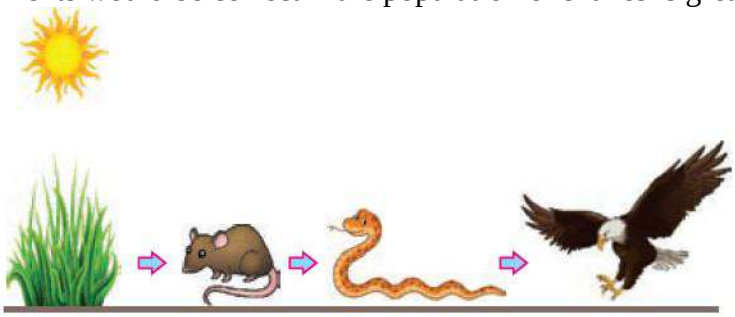
2. Disposable plastic plates should not be used because:
(a) they are made of materials with light weight.
(b) they are durable.
(c) they are made of biodegradable materials.
(d) they are made of non-biodegradable materials.
Ans. (d) they are made of non-biodegradable materials.
Disposable plastic plates should not be used because they are made of non-biodegradable materials that cannot be broken down into their basic simpler compounds by the micro organisms. So, they are an environmental concern as they become pollutants and create disposal problems.

3. In the given food chain, suppose the amount of energy at fourth trophic level is 5 kJ, what will be the energy available at the producer level?
Grass → Grasshopper → Frog → Snake → Hawk
(a) 5 kJ (b) 50 kJ (c) 500 kJ (d) 5,000 kJ

Ans. (d) 5,000 kJ
According to 10% law, only 10% of energy is transferred to the next trophic level and remaining 90% energy is used in life processes by present trophic level.
Therefore, Energy available to Grass = 5000 kJ.
Energy available to Grasshopper = 10% of 5000 kJ = 500 kJ.
Energy available to Frog = 10% of 500 kJ = 50 kJ
Energy available to Snake = 10% of 50 kJ = 5 kJ

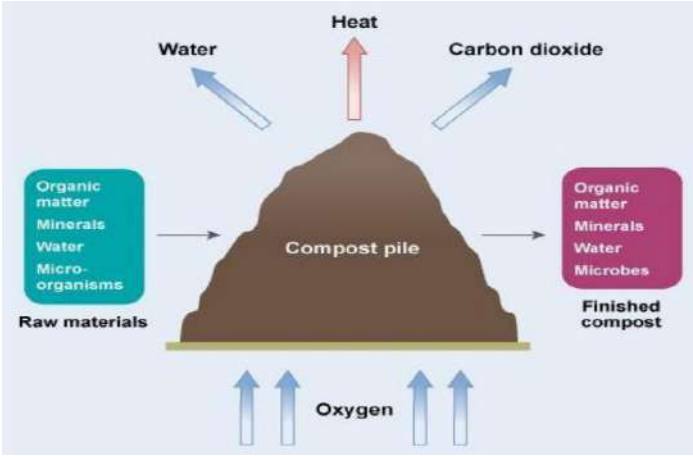
4. In 1987, an agreement was formulated by the United Nations Environment Programme (UNEP) to freeze the production of "X" to prevent depletion of "Y". "X" and "Y" respectively referred here are:
(a) Ozone; CFCs (b) CFCs; rays UV
(c) CFCs; Ozone (d) UV rays; Diatomic oxygen
Ans. (c) CFCs; Ozone
The montreal protocol, finalised in 1987, is a global agreement formulated by the United Nations Environment Programme (UNEP) to freeze the production of CFCs to prevent depletion of ozone.

5. Which of these statements would be correct if the population of snakes is greatly increased?



(a) Population of green plants will decrease.
(b) Population of mice will decrease.
(c) Population of snakes will decrease.
(d) Population of hawk will decrease. Ap
Ans. (b) Population of mice will decrease.
Based on the given food chain, the population of mice may decrease if the number of snakes would increase.

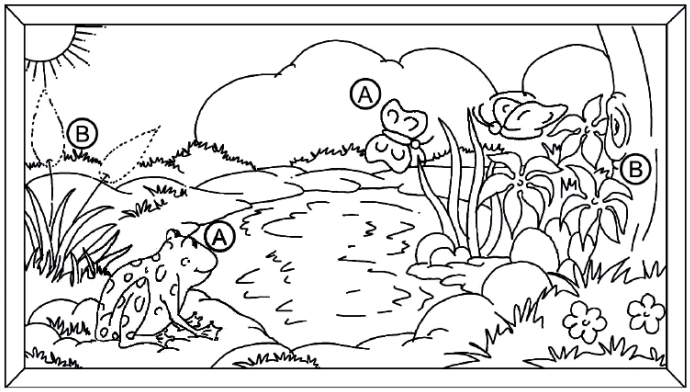
6. Composting is the process where organic wastes are degraded into compost. The diagram shows the details of the process.



What can be concluded from the diagram?
(a) Composting helps in recycling plastic scraps.
(b) Composting absorbs heat from the environment.
(c) Composting takes place only in the presence of oxygen.
(d) Composting takes place in the presence of either oxygen or carbon dioxide.

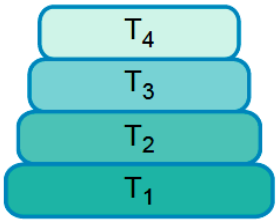
Ans. (c) Composting takes place only in the presence of oxygen.
Composting is an aerobic process which takes place in the presence of oxygen. It is also called aerobic biodegradation.

7. An ecosystem is represented in the figure given above. This ecosystem will be selfsustaining if



(a) the type of organisms represented by B are eliminated.
(b) materials cycle between the organisms labelled A and the organisms labelled B.
(c) the organisms labelled A outnumber the organisms labelled B.
(d) the organisms labelled A are equal in number to the organisms labelled B.
Ans. (b) materials cycle between the organisms labelled A and the organisms labelled B.

8. In the given figure alongside the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available?



(a) T_4 (b) T_2 (c) T_1 (d) T_3
Ans. (c) T_1

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

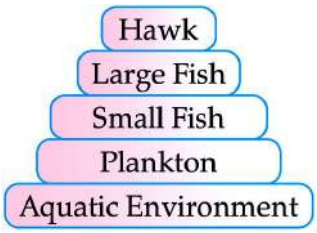
9. **Assertion (A):** Food chain is responsible for the entry of harmful chemicals in our bodies.
Reason (R): The length and complexity of food chains vary greatly.
Ans. (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
Through bio-magnification, harmful chemicals that are not metabolised by our body pass into the food chain, irrespective of the length and complexity of the food chain, which may vary in nature.

10. **Assertion (A):** Omnivores receive 10% of their energy from the trophic level below them.
Reason (R): An omnivore is always in the trophic level just above herbivores.
Ans. (c) A is true but R is false.
According to the 10% law of energy given by Lindemann, only 10% of energy in a food chain out of the total energy is transferred from one trophic level to another. So, omnivores receive 10% of their energy from the trophic level. The position of an omnivore in the trophic levels can vary based on its diet and the ecosystem it inhabits.

SECTION – B

Questions 11 to 14 carry 2 marks each.

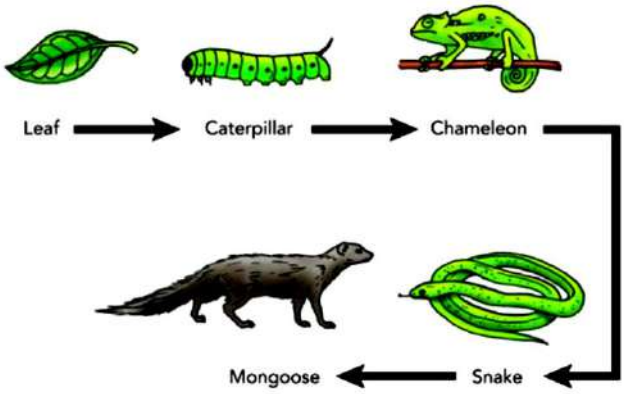
11. DDT was sprayed in a lake to regulate breeding of mosquitoes. How would it affect the trophic levels in the following food chain associated with a lake? Justify your answer.



Ans. DDT being a non- biodegradable pesticide will enter the food chain from the first trophic level i.e., Plankton.
Non–biodegradable pesticides accumulate progressively at each trophic level. This phenomenon is known as biological magnification.
Hawk will have the highest level of pesticide.

OR

Study the food chain given below and answer the questions that follow:



(a) If the amount of energy available at the third trophic level is 100 joules, then how much energy will be available at the producer level? Justify your answer.
(b) Is it possible to have 2 more trophic levels in this food chain just before the fourth trophic level? Justify your answer.
Ans. (a) 10000 J because only 10% of energy is available for the next trophic level.
(b) No, since the loss of energy at each step is so great that very little usable energy will remain after 4 trophic levels.

12. How does improper disposal of biodegradable substances would affect the environment?
Ans. Improper disposal of biodegradable substances would affect the environment in the following ways:
(i) They would serve as breeding ground for flies and mosquitoes which are carriers of diseases like cholera, typhoid and malaria.
(ii) They will produce foul smell, thus causing air pollution. If thrown in water, it would cause water pollution.

OR

Why should biodegradable and nonbiodegradable wastes be discarded in two different dustbins?
Ans. Biodegradable and non-biodegradable wastes should be discarded in two different dustbins because of the following reasons:
(i) The biodegradable wastes kept in a separate bin can be dumped directly into a pit for composting or for dumping in the landfills.
(ii) The useful part of non-biodegradable wastes kept in a different bin can be separated for recycling or reusing them.
(iii) Non-useful part of wastes can be disposed off in such a way that it does not harm the people or pollute the environment in anyway.

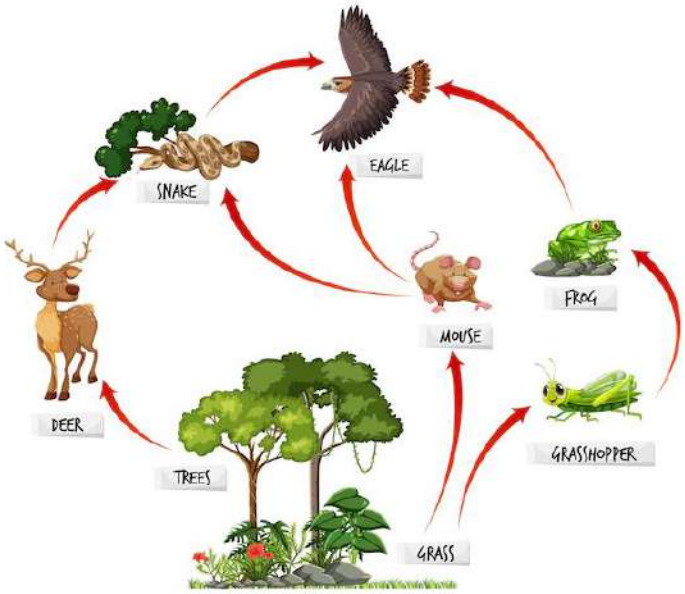
(iv) Segregated waste is cheaper to dispose off because it does not require as much manual or mechanical sorting as mixed waste. (Any two)

13. Give two examples of decomposers. State their important role in nature.
Ans. Bacteria and fungi are decomposers because bacteria and fungi break down the dead and decaying organic matter into simpler substances and provide the nutrients back to the soil.
Importance of decomposers in nature are:
(i) They act as natural scavengers.
(ii) They help in recycling of nutrients.

14. (i) Create a terrestrial food chain depicting four trophic levels.
(ii) Why do we not find food chains of more than four trophic levels in nature?
Ans. (i) Rice (Producers) → Rat (Herbivores) → Snake (Carnivores) → Peacock (Top carnivores).
(ii) This is because according to 10 percent law of energy transfer, only 10 percent of the energy passes from one trophic level to the next. Thus, the amount of energy goes on decreasing with the successive trophic levels.

OR

Study the food web shown below.



(a) Identify and write the food chain from the food web shown, in which the eagle will receive the highest percentage of the energy from the producers.
(b) Which organism will be the most affected when a non-biodegradable pesticide is introduced into the soil? What is the phenomenon responsible for this called?
Ans. (a) Higher the number of trophic levels, lesser the amount of energy received by the final consumer i.e., Eagle. This is according to the 10% law of energy flow, which states that only 10% of the energy is transferred to the next trophic level.
The eagle will receive the highest percentage of the energy from the producers in the following food chain:
Grass → Mouse → Eagle
(b) Eagle will be the most affected when a non-biodegradable pesticide is introduced into the soil due to biological magnification.

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Plastic cups were used to serve tea in trains in early days- these could be returned to the vendors, cleaned and reused. Later, Kulhads were used instead of plastic cups. Now, paper cups are used

for serving tea. What are the reasons for the shift from Plastic to Kulhads and then finally to paper cups?
Ans. Plastic cups are non-biodegradable and harm the environment. They were, thus, replaced by Kulhads.
Making Kulhad, which is made of clay on a large scale resulted in the loss of top fertile soil. Now, disposable paper cups are used because the paper can be recycled, it is biodegradable and is eco-friendly material, which does not cause any environmental pollution.

16. (a) Explain the role of UV radiation in producing ozone layer.
(b) Mention the reaction involved.
(c) Why is excessive use of CFCs a cause of concern?
Ans. (a) High energy UV radiations split apart some molecular oxygen into free (O) atoms, these atoms combine with molecular oxygen to form ozone.
(b) $O_2 \xrightarrow{UV} O + O$

$O + O_2 \rightarrow O_3$ (Ozone)

(c) When CFCs reach upper layers of the atmosphere they cause depletion of ozone layer and allow harmful UV radiations to reach the surface of the earth to create health hazards.

OR

(a) Construct a food chain of four trophic levels comprising the following:
Hawk, snake, plants, rat.
(b) 20,000 J of energy was transferred by the producers to the organism of second trophic level. Calculate the amount of energy that will be transferred by organisms of the third trophic level to the organisms of the fourth trophic level.
Ans. (a) The flow of nutrients and energy from one organism to another at different trophic levels forms a food chain.
Plants → Rat → Snake → Hawk
(b) Only 10% of energy will be transferred to the next trophic level, according to the 10% law of energy transfer, and 90% will be wasted as heat and incomplete digestion.
According to this law,
(i) Energy is transferred from producers to the second trophic level = 20,000 J.
(ii) Energy moved from the second to the third trophic level, 10% of 20,000 J = 2,000 J.
(iii) Energy moved from the third to the fourth trophic level is equal to 10% of 2,000 J = 200 J.

17. What is trophic level? Why are autotrophs considered to be at the first trophic level of all food chains? State the reason for limited number of trophic levels in nature.
Ans. A specific place of organisms in the food chain is known as their trophic level.
Producers (green plants) constitute first trophic level in a food chain. It is because they take nutrients from the soil or the water, and manufacture their own food by photosynthesis, using energy from the sun.
In a food chain, the number of trophic levels is limited to 4 - 5. This, is because according to 10% law of energy transfer of only 10% of energy passes from one trophic level to next. Thus, the amount of energy decreases with successive trophic levels.

OR

How can we help in reducing the problem of waste disposal? Suggest any three methods.
Ans. Methods to reduce the problem of waste disposal are as follows:
(i) Segregation of waste should be done by separating biodegradable waste substances from non-biodegradable substances.
(ii) By recycling the solid wastes like paper, plastic and metals etc, i.e., they are reprocessed or melted and remoulded to make new articles.
(iii) By composting biodegradable domestic wastes such as fruit and vegetable peels, the leaves of potted plants can be converted into compost and used as manure.
(iv) By reducing and reusing of nonbiodegradable substances.
(v) By minimising the use of disposable items, which are non-biodegradable. (Any three)

SECTION – D

Questions 18 carry 5 marks.

18. How is ozone formed in the higher levels of the atmosphere? Why is damage to the ozone layer a cause for concern? What are its causes and what steps are being taken to limit this damage? Write one harmful effect of ozone depletion.

Ans. When high energy ultraviolet radiations react with oxygen present in stratosphere (the higher level of atmosphere) it splits into its constituent atoms. Since these atoms produced are very reactive, they react with molecular oxygen (O2) to form ozone (O3).

Damage to the ozone layer is a cause for concern because the ozone layer shields the surface of earth from harmful UV radiations from the sun which cause skin cancer in human beings.

Synthetic chemicals like chlorofluorocarbons (CFCs) which are used as refrigerants and in the fire extinguishers are the main reason for the depletion of the ozone layer.

Many developing and developed countries have signed and are obeying the directions of UNEP (United Nations Environment Programme) to freeze or limit the production and usage of CFCs at 1986 levels.

Harmful effect of ozone depletion:

(i) Ozone layer depletion causes increased UV radiation levels at the Earth's surface, which is damaging to human health as it causes certain types of skin cancer, eye cataracts and immune deficiency disorders.

(ii) UV radiation also affects terrestrial and aquatic ecosystems, altering growth, food chains and biochemical cycles.

(iii) UV rays also affect plant growth, reducing agricultural productivity. (Any one)

OR

(a) Why does a kitchen garden called an artificial ecosystem while a forest is considered to be a natural ecosystem?

(b) While designing an artificial ecosystem at home, write any two things to be kept in mind to convert it into a self-sustaining system. Give reason to justify your answer.

Ans. (a) Kitchen gardens are referred to as artificial ecosystems because they are man-made and contain adjusted abiotic and biotic components. It is an ecosystem where plants are produced, including fruits and vegetables whereas a forest is a place where various creatures live in harmony and rely on one another for food and other necessities.

As a result, a forest creates an ecosystem that can support itself.

(b) Two things to keep in mind while designing an artificial ecosystem:

(i) Balance between biotic and abiotic factors.

(ii) Recycling of nutrients and wastes.

Reason: Abiotic factors include elements like temperature, light, water, and nutrients, whereas biotic factors are things like plants, animals, fungus, and microorganisms. Due of their interdependence, any changes to one of these components can have an impact on the ecosystem as a whole. To support the development and survival of all organisms within the ecosystem, it is crucial to maintain a balance between various components in the ecosystem. Recycling is essential for maintaining the health and sustainability of the ecosystem.

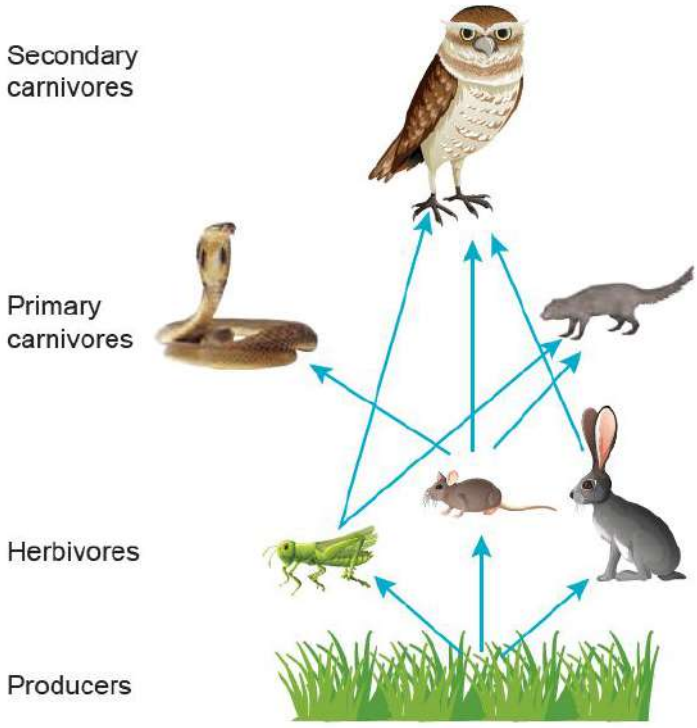
SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. Food chains are very important for the survival of most species. When only one element is removed from the food chain it can result in extinction of a species in some cases. The foundation of the food chain consists of primary producers.

Primary producers, or autotrophs, can use either solar energy or chemical energy to create complex organic compounds, whereas species at higher trophic levels cannot and so must consume producers or other life that itself consumes producers. Because the sun's light is necessary for photosynthesis, most life could not exist if the sun disappeared. Even so, it has recently been discovered that there are some forms of life, chemotrophs, that appear to gain all

their metabolic energy from chemosythesis driven by hydrothermal vents, thus showing that some life may not require solar energy to thrive.



Food Web

(a) If 10,000J of solar energy falls on green plants in a terrestrial ecosystem, what percentage of solar energy will be converted into food energy?
(b) In which trophic level, do rats fall in this food chain?
(c) (i) If 10J of energy is available to snake, how much energy will be available from snake to owl?
(ii) Mr. X is eating curd/yogurt. For this food intake in a food chain, in which level he should be considered as occupying?

OR

(c) Why do the number of trophic levels is limited to 3 or 4?

Ans. (a) 1% of 10,000J = 100J
(b) 2nd trophic level.
(c) (i) 10% of 100J = 10J
(ii) Third trophic level

OR

(c) During transfer of energy from one trophic level to another, a huge amount of energy is lost as heat energy. There will not by any energy left after 3 or 4 trophic levels. Hence number of trophic levels is limited to 3 or 4.

20. Every living thing plays a role in the food chain and Earth's ecosystems, and the extinction of certain species, whether predators or prey, can leave behind significant impacts. Since the origin of life on Earth, it's fair to say that more species have gone extinct than are currently alive now. Extinction itself is part of the normal course of evolution. The effect of a species would have if it were to fade from existence depends largely on its role in the ecosystem. Predators, for example, are often the first to be threatened by hunting or competition with people and resources. When a predator goes extinct, all of its prey are released from that predation pressure, and they may have big impacts on ecosystems. The loss of a predator can result in what is called a trophic cascade, which is an ecological phenomenon triggered by a predator's extinction that can also impact populations of prey, which can cause dramatic ecosystem and food web changes. If there are too many deer, for example, they can really change the ecosystem because they can destroy forests, and they also carry disease.

(a) What is an ecosystem?

(b) List two man-made ecosystems.

(c) What will be the impact if all the organisms of one trophic level die? Give any one effect.

OR

(c) Justify the statement; 'All the flesh of a carnivore is grass'.

Ans. (a) It is the structural and functional unit of biosphere, comprising of all the interacting organisms in an area together with the non-living constituents of the environment.

(b) Aquarium, cropland, park. (any two)

(c) If all the organisms of one trophic level die, then the organisms in the next trophic level will not get their food and hence they will either die or migrate to a different food chain.

OR

(c) Carnivores depend on the flesh of herbivores. Herbivores build up their tissues with the help of food for which they depend upon the plants. This justifies the statement that all the flesh of a carnivore is grass.