

# **Teacher's Handbook**

## **BIOLOGY Class-VI**

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## EXERCISE - 1

### I. Choose the Correct Answer:

- |                                                                                                 |                              |
|-------------------------------------------------------------------------------------------------|------------------------------|
| 1. What is the primary source of energy for the body?                                           | <b>Ans:</b> b) Carbohydrates |
| 2. Which is a simple carbohydrate?                                                              | <b>Ans:</b> b) Glucose       |
| 3. What does the body break down for a quick energy release?                                    | <b>Ans:</b> c) Glucose       |
| 4. Which is a complex carbohydrate?                                                             | <b>Ans:</b> b) Starch        |
| 5. Which mineral deficiency causes anaemia?                                                     | <b>Ans:</b> b) Iron          |
| 6. What nutrient helps in the formation of blood?                                               | <b>Ans:</b> a) Iron          |
| 7. Which vitamin deficiency causes rickets?                                                     | <b>Ans:</b> c) Vitamin D     |
| 8. Which vitamin is essential for maintaining healthy eyes?                                     | <b>Ans:</b> a) Vitamin A     |
| 9. Which nutrient is necessary for body building?                                               | <b>Ans:</b> b) Proteins      |
| 10. Which vitamin is essential for healthy skin?                                                | <b>Ans:</b> b) Vitamin A     |
| 11. Which vitamin is vital for immune function?                                                 | <b>Ans:</b> b) Vitamin C     |
| 12. Which mineral is important for strong bones and teeth?                                      | <b>Ans:</b> b) Calcium       |
| 13. Which is a source of animal protein?                                                        | <b>Ans:</b> b) Eggs          |
| 14. Which type of carbohydrate consists of long sugar chains?                                   | <b>Ans:</b> b) Complex       |
| 15. What disease is caused by B1 deficiency?                                                    | <b>Ans:</b> a) Beriberi      |
| 16. What is the main source of fat in plants?                                                   | <b>Ans:</b> b) Oil           |
| 17. Which food component protects organs like kidneys and eyes?                                 | <b>Ans:</b> c) Fats          |
| 18. Which vitamin is essential for the proper formation of blood cells?                         | <b>Ans:</b> a) Vitamin B12   |
| 19. What type of carbohydrate is sucrose?                                                       | <b>Ans:</b> a) Disaccharide  |
| 20. Which mineral deficiency causes goitre?                                                     | <b>Ans:</b> b) Iodine        |
| 21. Which vitamin deficiency leads to poor night vision?                                        | <b>Ans:</b> b) Vitamin A     |
| 22. Which mineral is necessary for nerve function?                                              | <b>Ans:</b> c) Sodium        |
| 23. Which food contains significant levels of lipids?                                           | <b>Ans:</b> a) Nuts          |
| 24. Which of the following helps in the absorption of nutrients from food?                      | <b>Ans:</b> b) Fiber         |
| 25. Which nutrient is essential for protecting the body from illness?                           | <b>Ans:</b> b) Vitamins      |
| 26. Which disease is caused by vitamin C deficiency?                                            | <b>Ans:</b> b) Scurvy        |
| 27. Which vitamin helps in the clotting of blood?                                               | <b>Ans:</b> a) Vitamin K     |
| 28. Which vitamin is found in citrus fruits?                                                    | <b>Ans:</b> b) Vitamin C     |
| 29. Which carbohydrate is found in honey?                                                       | <b>Ans:</b> a) Glucose       |
| 30. Which mineral is important for maintaining water balance?                                   | <b>Ans:</b> b) Sodium        |
| 31. Which nutrient is considered the body's "energy bank"?                                      | <b>Ans:</b> b) Fats          |
| 32. Which of the following is an example of a monosaccharide?                                   | <b>Ans:</b> c) Glucose       |
| 33. Which type of vitamin is primarily responsible for maintaining the health of skin and eyes? | <b>Ans:</b> a) Vitamin A     |
| 34. What happens with a vitamin C deficiency?                                                   | <b>Ans:</b> a) Scurvy        |
| 35. Which is a symptom of iron deficiency?                                                      | <b>Ans:</b> c) Anaemia       |

## II. Say True or False:

- |                                                                       |                   |
|-----------------------------------------------------------------------|-------------------|
| 1. Carbohydrates are the main source of energy for the body.          | <b>Ans:</b> True  |
| 2. Proteins are the primary source of energy for the body.            | <b>Ans:</b> False |
| 3. Glucose is a simple carbohydrate.                                  | <b>Ans:</b> True  |
| 4. Starch is an example of a simple carbohydrate.                     | <b>Ans:</b> False |
| 5. Iron deficiency causes anaemia.                                    | <b>Ans:</b> True  |
| 6. Calcium is necessary for the formation of blood.                   | <b>Ans:</b> False |
| 7. Vitamin D deficiency causes rickets.                               | <b>Ans:</b> True  |
| 8. Vitamin A is required for the development of healthy skin.         | <b>Ans:</b> True  |
| 9. Proteins are necessary for body building.                          | <b>Ans:</b> True  |
| 10. Vitamin B2 is important for healthy eyes.                         | <b>Ans:</b> True  |
| 11. Vitamin C is essential for immune function.                       | <b>Ans:</b> True  |
| 12. Calcium is necessary for strong bones and teeth.                  | <b>Ans:</b> True  |
| 13. Lentils are an example of animal protein.                         | <b>Ans:</b> False |
| 14. Complex carbohydrates consist of long sugar chains.               | <b>Ans:</b> True  |
| 15. Beriberi is caused by Vitamin B1 deficiency.                      | <b>Ans:</b> True  |
| 16. Butter is the main source of fat in plants.                       | <b>Ans:</b> False |
| 17. Fats protect organs like kidneys and eyes.                        | <b>Ans:</b> True  |
| 18. Vitamin B12 is essential for the proper formation of blood cells. | <b>Ans:</b> True  |
| 19. Sucrose is a polysaccharide.                                      | <b>Ans:</b> False |
| 20. Iodine deficiency causes goitre.                                  | <b>Ans:</b> True  |

## III. Match the Following:

### Set 1

- |                  |   |                                   |
|------------------|---|-----------------------------------|
| 1. Carbohydrates | → | b) Source of energy for the body  |
| 2. Proteins      | → | e) Body-building foods            |
| 3. Vitamin C     | → | a) Essential for immune function  |
| 4. Iron          | → | c) Required for blood formation   |
| 5. Fats          | → | d) Gives energy & protects organs |

### Set 2

- |              |   |                          |
|--------------|---|--------------------------|
| 1. Rickets   | → | b) Vitamin D deficiency  |
| 2. Beri Beri | → | d) Vitamin B1 deficiency |
| 3. Anaemia   | → | c) Iron deficiency       |
| 4. Goitre    | → | e) Iodine deficiency     |
| 5. Scurvy    | → | a) Vitamin C deficiency  |

### Set 3

- |                          |   |                         |
|--------------------------|---|-------------------------|
| 1. Monosaccharides       | → | b) Glucose and fructose |
| 2. Disaccharides         | → | c) Two sugar molecules  |
| 3. Complex Carbohydrates | → | a) Starch and fiber     |
| 4. Simple Carbohydrates  | → | e) Quick energy release |
| 5. Polysaccharides       | → | d) Long sugar chains    |

#### IV. Multi-Correct Answer Type Questions:

1. Which are sources of carbohydrates?

**Ans:** a) Rice, c) Wheat

2. Which vitamins are essential for immune function?

**Ans:** b) Vitamin C, c) Vitamin D

3. Which of the following diseases are caused by vitamin deficiencies?

**Ans:** b) Rickets, c) Anaemia

4. Which are examples of monosaccharides?

**Ans:** a) Glucose, c) Fructose

5. Which of the following are types of simple carbohydrates?

**Ans:** a) Glucose, b) Sucrose

6. Which of the following are important functions of fats?

**Ans:** a) Energy storage, c) Shock absorption

7. Which of the following are sources of protein?

**Ans:** a) Eggs, b) Lentils, c) Fish

8. Which of the following are sources of water in our diet?

**Ans:** a) Fresh fruits, b) Vegetables

9. Which of the following vitamins help with skin and bone health?

**Ans:** a) Vitamin A, b) Vitamin C, c) Vitamin D

10. Which of the following are characteristics of complex carbohydrates?

**Ans:** a) Slow digestion, c) Composed of long sugar chains

#### V. Reasoning Type Questions:

1. **Assertion :** Carbohydrates are the body's primary source of energy.

**Reason :** Carbohydrates are composed of carbon, hydrogen, and oxygen, which are essential for energy production.

**Ans:** a) Both correct, Reason explains Assertion.

2. **Assertion :** Complex carbohydrates release energy slowly and provide sustained energy.

**Reason :** Complex carbohydrates consist of long chains of sugar molecules, which take longer to break down.

**Ans:** a) Both correct, Reason explains Assertion.

3. **Assertion :** Vitamin D helps in the absorption of calcium.

**Reason :** Vitamin D regulates calcium deposition, which is essential for strong bones and teeth.

**Ans:** a) Both correct, Reason explains Assertion.

4. **Assertion :** Overconsumption of fats can lead to obesity.

**Reason :** Fats provide more energy per gram compared to carbohydrates or proteins.

**Ans:** a) Both correct, Reason explains Assertion.

5. **Assertion** : A balanced diet is necessary for good health.  
**Reason** : A balanced diet provides essential nutrients in the right proportions for growth and development.  
**Ans:** a) Both correct, Reason explains Assertion.
6. **Assertion** : Lack of water can cause dehydration.  
**Reason** : Water is essential for nutrient transport, waste removal, and temperature regulation in the body.  
**Ans:** a) Both correct, Reason explains Assertion.
7. **Assertion** : Vitamin C helps in wound healing.  
**Reason** : Vitamin C is essential for the health of gums, teeth, and bones, which aids in tissue repair.  
**Ans:** a) Both correct, Reason explains Assertion.
8. **Assertion** : Proteins are called body-building foods.  
**Reason** : Proteins are essential for cell division, growth, and tissue repair.  
**Ans:** a) Both correct, Reason explains Assertion.
9. **Assertion** : Deficiency of iron causes anaemia.  
**Reason** : Iron is essential for the formation of haemoglobin, which carries oxygen in the blood.  
**Ans:** a) Both correct, Reason explains Assertion.
10. **Assertion** : Goitre is caused by iodine deficiency.  
**Reason** : Iodine is required for the production of thyroxine, a hormone responsible for growth and development.  
**Ans:** a) Both correct, Reason explains Assertion.

#### **VI. Choose the Odd Man Out:**

1. **Ans:** D) Water (Others are macronutrients.)  
2. **Ans:** D) Calcium (Others are vitamins.)  
3. **Ans:** D) Protein (Others are carbohydrates.)  
4. **Ans:** D) Vitamin D (Others are minerals.)  
5. **Ans:** C) Spinach (Others are fruits; spinach is a vegetable.)  
6. **Ans:** C) Protein (Others are not nutrients but components.)  
7. **Ans:** D) Iodine (Others are vitamins; iodine is a mineral.)  
8. **Ans:** B) Iron (Others are vitamin categories or minerals.)  
9. **Ans:** C) Vitamin A (Others are B-complex vitamins.)  
10. **Ans:** C) Milk (Others are grains; milk is animal-derived.)

#### **VII. Answer the Following Questions:**

1. Write the five major nutrients found in food.  
**Ans:** Carbohydrates, Proteins, Fats, Vitamins, Minerals.
2. Write the food items where we find carbohydrates.  
**Ans:** Rice, wheat, potatoes, bread, fruits (bananas, apples).

3. Explain simple carbohydrate.

**Ans:** Simple carbohydrates are sugars (glucose, fructose) that provide quick energy.

4. Explain complex carbohydrate.

**Ans:** Complex carbohydrates (starch, fiber) have long sugar chains, providing slow energy release.

5. Explain the benefits of vitamins.

**Ans:** Vitamins boost immunity (C), improve vision (A), strengthen bones (D), and aid blood clotting (K).

6. Explain the benefits of proteins.

**Ans:** Proteins help in growth, tissue repair, enzyme production, and immune function.

7. What are the diseases caused by the deficiency of vitamins? (A, B, C, D, E)

**Ans:** The following are the diseases caused by the deficiency of vitamins

**Vitamin A:** Night blindness

**Vitamin B1 (Thiamine):** Beriberi

**Vitamin C:** Scurvy

**Vitamin D:** Rickets

**Vitamin E:** Nerve/muscle damage (rare).

## EXERCISE - 2

### I. Choose the Correct Answer:

1. Where can living organisms survive? **Ans:** c) Anywhere on Earth
2. What is a primary component of a desert habitat? **Ans:** a) Cactus
3. Which abiotic factor is essential for plant germination? **Ans:** a) Soil
4. What do all organisms need to survive? **Ans:** a) Food, water, and oxygen
5. What is the habitat of camels? **Ans:** b) Desert
6. Which component includes living species? **Ans:** b) Biotic
7. What type of habitat do yaks primarily live in? **Ans:** b) Mountains
8. What adaptation helps camels store water? **Ans:** b) Humps
9. What do organisms need from their environment to survive? **Ans:** c) Food and water
10. What are terrestrial habitats? **Ans:** b) Land-based areas
11. What is a common feature of grasslands? **Ans:** b) Grasses
12. Which is an aquatic habitat? **Ans:** c) River
13. What adaptation helps cacti survive in the desert? **Ans:** a) Spines
14. What type of climate is found in tundra habitats? **Ans:** c) Extremely cold
15. Which plant has waxy leaves to store water? **Ans:** a) Cactus
16. What does 'adaptation' mean in biology? **Ans:** b) Long-term survival changes
17. What helps fish breathe underwater? **Ans:** a) Gills
18. Which animal does not drink water but gets it from food? **Ans:** b) Kangaroo rat
19. What are rainforest trees adapted to? **Ans:** a) Limited light
20. What is the term for temporary changes in response to the environment? **Ans:** c) Acclimatisation
21. What is the process of removing waste from the body called? **Ans:** b) Excretion
22. What kind of leaves do boreal forest trees have? **Ans:** a) Needle-like
23. Which animal is adapted for climbing mountains? **Ans:** b) Mountain goat
24. What is the smallest structural unit of living organisms? **Ans:** c) Cell
25. What characteristic helps lions survive in grasslands? **Ans:** a) Sharp claws
26. Which term describes seasonal movement in animals? **Ans:** b) Migration
27. What enables snow to slide off mountain trees? **Ans:** b) Cone shape
28. Which adaptation is common in aquatic plants? **Ans:** a) Flexible stems
29. What kind of organism is found in marine habitats? **Ans:** b) Whale
30. What is the process by which plants make their own food? **Ans:** b) Photosynthesis

### II. Say True or False:

1. Living organisms can survive only in tropical regions. **Ans:** False
2. Abiotic components include air, water, soil, sunlight, and temperature. **Ans:** True
3. Biotic components consist of living species such as plants, animals, and microorganism. **Ans:** True
4. A habitat provides food, shelter, and weather conditions for organisms. **Ans:** True
5. Polar bears are commonly found in deserts. **Ans:** False

6. The environment does not influence the growth and development of organisms. **Ans:** False
7. Cacti store water in their roots to survive desert conditions. **Ans:** False
8. Camels can survive without water for long periods because they store fat in their humps. **Ans:** True
9. Acclimatisation refers to long-term changes in organisms over generations. **Ans:** False
10. Tundra regions have warm, humid weather suitable for dense vegetation. **Ans:** False
11. Frogs have webbed feet to help them swim efficiently. **Ans:** True
12. Plants in boreal forests have broad leaves to capture more sunlight. **Ans:** False
13. Grassland plants have deep roots to access underground water. **Ans:** True
14. Lions use camouflage and teamwork to hunt prey in grasslands. **Ans:** True
15. Marine animals like dolphins and whales use blowholes to breathe. **Ans:** True
16. Rainforest plants have drip tips to allow water to run off their leaves. **Ans:** True
17. Desert kangaroo rats drink water daily to stay hydrated. **Ans:** False
18. Hibernation is a behavioral adaptation seen in some animals during summer. **Ans:** False
19. Living organisms excrete waste to maintain internal balance. **Ans:** True
20. Estuaries are regions where saltwater and freshwater mix. **Ans:** True

### III. Match the Following

#### Set 1: Adaptations and Features

1. Camel → c) Fat-storing hump
2. Fish → a) Gills
3. Yak → e) *thick fur (Correction Need)*
4. Mountain goat → d) Strong hooves
5. Cactus → e) Water-storing stem

#### Set 2: Types of Plants and Characteristics

1. Grasslands → c) Flexible stalks
2. Desert → d) Spines
3. Rainforest → a) Drip tips
4. Boreal forest → b) Needle-like leaves
5. Mountains → e) Conical shape

#### Set 3: Environmental Components

1. Biotic → b) Animals
2. Air → d) Oxygen
3. Sunlight → e) Photosynthesis
4. Terrestrial → c) Land
5. Aquatic → a) Water

### IV. Multi-Correct Answer Type Questions

1. Which are abiotic components of the environment?

**Ans:** a) Air, b) Water

2. Which are examples of terrestrial habitats?

**Ans:** a) Desert, c) Forest

3. Which organisms are adapted to desert habitats?

**Ans:** b) Cactus, c) Camel

4. Which factors are important for plant growth?

**Ans:** a) Soil, b) Sunlight

5. Which adaptations are common in fish?

**Ans:** b) Fins, c) Gills

6. Which features help camels survive in deserts?

**Ans:** a) Humps, c) Long legs

7. Which are examples of aquatic habitats?

**Ans:** a) Rivers, b) Oceans

8. Which animals are found in grasslands?

**Ans:** b) Zebras, c) Lions

9. Which are examples of hibernation?

**Ans:** a) Bears, c) Frogs

10. Which plants have adaptations to store water?

**Ans:** a) Cactus, c) Succulents

11. Which organisms migrate seasonally?

**Ans:** c) Birds

12. Which are characteristics of boreal forest trees?

**Ans:** c) Needle-like leaves

13. Which animals are found in mountain habitats?

**Ans:** c) Mountain goats

14. Which features help cacti survive deserts?

**Ans:** a) Spines, b) Water storage in stems

15. Which are examples of rainforest adaptations?

**Ans:** b) Large leaves for light absorption, c) Drip-tip leaves

16. Which are non-living components of an environment?

**Ans:** a) Water, c) Temperature

17. Which are adaptations to survive cold climates?

**Ans:** b) Layer of fat, c) Thick fur

18. Which animals are adapted to tundra habitats?

**Ans:** a) Polar bears, b) Reindeers

19. Which are characteristics of evergreen trees?

**Ans:** a) Needle-like leaves, c) Conical shape

20. Which factors affect the survival of organisms in their habitats?

**Ans:** a) Food availability, b) Temperature

## V. Reasoning Type Questions

1. **Assertion** : Camels can survive for long periods without water.

**Reason** : Camels store water in their humps.

**Ans:** c) Assertion correct, Reason incorrect.

2. **Assertion** : Fish have streamlined bodies.

**Reason** : Streamlined bodies help fish move efficiently in water.

**Ans:** a) Both correct, Reason explains Assertion.

3. **Assertion** : Polar bears are found in desert habitats.

**Reason** : Polar bears have thick fur to survive in cold conditions.

**Ans:** d) Assertion incorrect, Reason correct.

4. **Assertion** : Plants in boreal forests have needle-like leaves.

**Reason** : Needle-like leaves reduce water loss during winter.

**Ans:** a) Both correct, Reason explains Assertion.

5. **Assertion** : Grassland plants have deep roots.

**Reason** : Deep roots help plants access underground water during dry periods.

**Ans:** a) Both correct, Reason explains Assertion.

6. **Assertion** : Cacti have spines instead of leaves.

**Reason** : Spines reduce water loss in desert conditions.

**Ans:** a) Both correct, Reason explains Assertion.

7. **Assertion** : Animals hibernate during winter.

**Reason** : Hibernation allows animals to conserve energy when food is scarce.

**Ans:** a) Both correct, Reason explains Assertion.

8. **Assertion** : Rainforest plants have drip-tip leaves.

**Reason** : Drip-tip leaves prevent water from collecting on the leaves.

**Ans:** a) Both correct, Reason explains Assertion.

9. **Assertion** : Aquatic plants have large, waxy leaves.

**Reason** : Waxy leaves prevent water from accumulating on the surface.

**Ans:** e) Both incorrect.

10. **Assertion** : Tundra regions have abundant vegetation.

**Reason** : Tundra regions are extremely cold, limiting plant growth.

**Ans:** d) Assertion incorrect, Reason correct.

## VI. Choose the Odd Man Out

1. **Ans:** c) **Whale** (Others are grassland animals.)

2. **Ans:** c) **Tiger** (Others are abiotic.)

3. **Ans: c) Pine tree** (Others are aquatic plants.)
4. **Ans: c) Penguin** (Others are desert features.)
5. **Ans: c) Polar bear** (Others are rainforest animals.)
6. **Ans: c) Gills** (Others are cold adaptations.)
7. **Ans: c) Oak tree** (Others are desert plants.)
8. **Ans: c) Dolphin** (Others are mountain animals.)
9. **Ans: c) Zebra** (Others are marine.)
10. **Ans: c) Coral** (Others are forest plants.)

## **VII. Answer the Following Questions**

1. What are the different types of terrestrial habitats?

**Ans:** Terrestrial habitats include forests (like rainforests and deciduous forests), grasslands, deserts, mountains, and polar regions (tundra).

2. Which species are found in grassland habitats?

**Ans:** Grasslands are home to animals like lions, zebras, elephants, deer, and grazing animals, along with various grasses and small plants.

3. Which species are found in rainforest habitats?

**Ans:** Rainforests contain tigers, monkeys, snakes, colorful birds like toucans, frogs, and thousands of insect species, along with tall, dense trees.

4. What are the characteristics of Tundra habitats?

**Ans:** Tundra habitats are very cold, treeless, have frozen ground (permafrost), and are home to animals like polar bears, reindeer, and Arctic foxes.

5. What is adaptation?

**Ans:** Adaptation refers to special features or behaviors that help plants and animals survive in their environment, like a camel's hump storing water in deserts.

6. What is acclimatization?

**Ans:** Acclimatization is when an organism adjusts temporarily to small changes in its environment, like how people might get used to higher altitudes over time.

7. What are the characteristics of desert habitats?

**Ans:** Deserts are very dry with little rainfall, extreme temperatures (hot days/cold nights), and have plants like cacti and animals like snakes and camels.

8. What adaptations do grassland predators have?

**Ans:** Grassland predators like lions have sharp claws and teeth, cheetahs have great speed, and wolves have strong legs for chasing prey.

9. What are examples of once-living things?

**Ans:** Examples include wood (from dead trees), leather (from animal skin), paper (from trees), and coal (from ancient plants).

10. What adaptations do freshwater animals have?

**Ans:** Freshwater animals have gills to breathe underwater (fish), webbed feet for swimming (frogs), and streamlined bodies (ducks) to move easily in water.

## EXERCISE - 3

### I. Choose the Correct Answer:

1. What is the process plants use to make food? **Ans:** b) Photosynthesis
2. Which pigment is essential for photosynthesis? **Ans:** b) Chlorophyll
3. What is the primary product of photosynthesis? **Ans:** b) Glucose
4. In which part of the plant does photosynthesis primarily occur? **Ans:** c) Leaves
5. What is the raw material for photosynthesis that plants take in from the air? **Ans:** b) Carbon dioxide
6. Which part absorbs water and minerals? **Ans:** b) Roots
7. What do plants release during photosynthesis? **Ans:** b) Oxygen
8. Which gas do plants absorb in photosynthesis? **Ans:** c) Carbon dioxide
9. How do plants convert solar energy? **Ans:** b) Photosynthesis
10. Which of the following is a heterotrophic plant? **Ans:** a) Cuscuta (Dodder)
11. Which component transports food in plants? **Ans:** b) Phloem
12. Which part of plant absorbs carbon dioxide? **Ans:** b) Stomata
13. Which plants perform autotrophic nutrition? **Ans:** c) Green plants
14. What is the role of stomata in plants? **Ans:** b) Allow gas exchange
15. What kind of nutrition do plants like Venus flytrap use? **Ans:** c) Insectivorous
16. Which bacteria fix nitrogen in soil? **Ans:** b) Rhizobium
17. What is the role of the xylem in plants? **Ans:** b) Transport water and minerals
18. Which plants are an example of a parasitic plant? **Ans:** a) Mistletoe
19. What is the function of the phloem in plants? **Ans:** b) Transport food
20. Which plants are insectivorous? **Ans:** b) Pitcher plant
21. What type of plants do not have chlorophyll and depend entirely on a host plant for nutrition? **Ans:** a) Total parasitic plants
22. Which is needed for protein synthesis in plants? **Ans:** a) Nitrogen
23. What do saprotrophic organisms feed on? **Ans:** b) Decaying organic matter
24. How do fungi absorb nutrients?  
**Ans:** b) By releasing digestive juices on decaying matter
25. Which is an example of saprotrophic nutrition? **Ans:** a) Fungi
26. What is the energy source for autotrophs? **Ans:** b) Sunlight
27. How do plants use soil nitrogen? **Ans:** b) To make proteins
28. What is the function of guard cells in the leaves?  
**Ans:** b) Control the opening and closing of stomata
29. What is the main food source for green plants? **Ans:** a) Glucose
30. What happens to the rate of photosynthesis when carbon dioxide levels are increased?  
**Ans:** c) It increases

### II. Say True or False

1. Plants perform photosynthesis in the roots. **Ans:** False
2. Chlorophyll is vital for photosynthesis. **Ans:** True

- |                                                              |                   |
|--------------------------------------------------------------|-------------------|
| 3. Leaves absorb water for photosynthesis.                   | <b>Ans:</b> False |
| 4. Autotrophs produce their own food.                        | <b>Ans:</b> True  |
| 5. All plants require oxygen for photosynthesis.             | <b>Ans:</b> False |
| 6. Insectivorous plants digest insects for nutrition.        | <b>Ans:</b> True  |
| 7. Xylem transports food to plant parts.                     | <b>Ans:</b> False |
| 8. Nitrogen-fixing bacteria make nitrogen usable for plants. | <b>Ans:</b> True  |
| 9. Mistletoe is an example of a parasitic plant.             | <b>Ans:</b> True  |
| 10. Green plants are heterotrophs.                           | <b>Ans:</b> False |
| 11. Photosynthesis occurs only in daylight.                  | <b>Ans:</b> True  |
| 12. Photosynthesis produces glucose and oxygen.              | <b>Ans:</b> True  |
| 13. Fungi are examples of autotrophic organisms.             | <b>Ans:</b> False |
| 14. Plants absorb nitrogen from the atmosphere.              | <b>Ans:</b> False |
| 15. Venus flytrap is an insectivorous plant.                 | <b>Ans:</b> True  |
| 16. Phloem transports water and minerals.                    | <b>Ans:</b> False |
| 17. Plants release carbon dioxide in photosynthesis.         | <b>Ans:</b> False |
| 18. Green plants perform autotrophic nutrition.              | <b>Ans:</b> True  |
| 19. Glucose is the main product of plant respiration.        | <b>Ans:</b> False |
| 20. Parasitic plants rely on other plants for nutrients.     | <b>Ans:</b> True  |

### III. Match the Following

#### Set 1:

- |              |   |                                                           |
|--------------|---|-----------------------------------------------------------|
| 1. Cuscuta   | → | A) Parasitic plant                                        |
| 2. Mistletoe | → | E) Parasitic plant reliant on host for water and minerals |
| 3. Nitrogen  | → | D) Fixing bacteria in soil convert it into a usable form  |
| 4. Phloem    | → | C) Transports food in plants                              |
| 5. Sunlight  | → | B) Required for photosynthesis                            |

#### Set 2:

- |                |   |                                                |
|----------------|---|------------------------------------------------|
| 1. Saprotrophs | → | B) Fungi and bacteria                          |
| 2. Rhizobium   | → | E) Forms a symbiotic relationship with legumes |
| 3. Bladderwort | → | D) A carnivorous plant                         |
| 4. Green Stems | → | A) Perform photosynthesis in some plants       |
| 5. Glucose     | → | C) Main product of photosynthesis              |

### IV. Multi-Correct Answer Type Questions

1. Which are needed for photosynthesis?

**Ans:** A) Water, B) Chlorophyll, D) Sunlight

2. Which of the following are parasitic plants?

**Ans:** A) Cuscuta, B) Mistletoe, D) Rafflesia

3. Which of the following are factors affecting the rate of photosynthesis?

**Ans:** A) Light intensity, B) Temperature, D) Water availability

4. Which of the following are essential nutrients for plants?

**Ans:** A) Nitrogen, B) Phosphorus, D) Carbon

5. Which are nitrogen-fixing bacteria?

**Ans:** A) Rhizobium, B) Azotobacter

6. Which of the following are modes of nutrition in plants?

**Ans:** A) Autotrophic, B) Heterotrophic, C) Saprotrophic, D) Parasitic

7. Which of the following are examples of insectivorous plants?

**Ans:** A) Venus Flytrap, B) Pitcher plant, C) Sundew

8. Which of the following are produced during photosynthesis?

**Ans:** A) Glucose, B) Oxygen

9. Which of the following are examples of saprotrophs?

**Ans:** A) Mushrooms, B) Fungi, C) Bacteria

10. Which of the following are benefits of fungi?

**Ans:** A) Aid in decomposition, B) Produce antibiotics

## **V. Reasoning Type Questions:**

1. **Assertion :** Photosynthesis occurs in the chloroplasts of plant cells.

**Reason :** Chloroplasts contain chlorophyll, which absorbs sunlight for photosynthesis.

**Ans:** a) Both correct, Reason explains Assertion.

2. **Assertion :** Green plants are called producers in an ecosystem.

**Reason :** Producers make their own food using sunlight through photosynthesis.

**Ans:** a) Both correct, Reason explains Assertion.

3. **Assertion :** In autotrophic nutrition, plants obtain energy from other organisms.

**Reason :** Autotrophs produce food from simple substances like carbon dioxide and water.

**Ans:** d) Assertion incorrect, Reason correct.

4. **Assertion :** Oxygen is released during the process of photosynthesis.

**Reason :** Water is split in photosynthesis, releasing oxygen.

**Ans:** a) Both correct, Reason explains Assertion.

5. **Assertion :** Plants take in carbon dioxide through stomata for photosynthesis.

**Reason :** Stomata are the tiny pores on the leaf surface that regulate gas exchange.

**Ans:** a) Both correct, Reason explains Assertion.

6. **Assertion :** Saprotrophic nutrition involves obtaining food from decaying organic matter.

**Reason :** Saprotrophs release enzymes to break down and absorb nutrients.

**Ans:** a) Both correct, Reason explains Assertion.

7. **Assertion :** Nitrogen-fixing bacteria help plants obtain nitrogen.

**Reason :** These bacteria convert nitrogen into forms plants can use for growth.

**Ans:** a) Both correct, Reason explains Assertion.

8. **Assertion** : Mistletoe is a partial parasite.  
**Reason** : Mistletoe photosynthesizes but relies on its host for water and minerals.  
**Ans:** a) Both correct, Reason explains Assertion.
9. **Assertion** : Saprotrophic nutrition is observed in fungi and bacteria.  
**Reason** : Fungi and bacteria release enzymes to decompose and absorb organic matter.  
**Ans:** a) Both correct, Reason explains Assertion.
10. **Assertion** : Parasitic plants have specialized structures to obtain nutrients from their host.  
**Reason** : Haustoria help parasitic plants absorb nutrients from host tissues.  
**Ans:** a) Both correct, Reason explains Assertion.
11. **Assertion** : Insectivorous plants supplement their nutrition by digesting insects.  
**Reason** : These plants use the energy from the insects for photosynthesis, which helps in the formation of glucose.  
**Ans:** c) Assertion correct, Reason incorrect.
12. **Assertion** : The presence of starch in leaves is an indication that photosynthesis has occurred.  
**Reason** : Starch is formed when glucose, the product of photosynthesis, is stored in the plant.  
**Ans:** a) Both correct, Reason explains Assertion.
13. **Assertion** : The rate of photosynthesis increases with temperature up to a certain point.  
**Reason** : High temperatures denature the enzymes involved in photosynthesis, thereby reducing the rate of the process.  
**Ans:** a) Both correct, Reason explains Assertion.
14. **Assertion** : Parasitic plants, such as *Cuscuta*, do not possess chlorophyll and cannot perform photosynthesis.  
**Reason** : Parasitic plants derive their nutrients from the host plant and do not need sunlight for food production.  
**Ans:** a) Both correct, Reason explains Assertion.

#### VI. Choose the Odd Man Out:

1. **Ans: D) Fungi** (Others are parasitic/insectivorous plants.)  
2. **Ans: D) Digestion** (Others are plant processes.)  
3. **Ans: D) Glucose** (Others are plant structures/pigments.)  
4. **Ans: D) Nitrogen** (Others are required for photosynthesis.)  
5. **Ans: D) Phloem** (Others are plant parts; phloem is a tissue.)  
6. **Ans: C) Animals** (Others are autotrophs/saprotrophs.)  
7. **Ans: C) Fertilizer** (Others are insectivorous plants/fungi.)  
8. **Ans: D) Root** (Others are related to photosynthesis.)  
9. **Ans: D) Mistletoe** (Others are insectivorous plants.)  
10. **Ans: D) Carbon dioxide** (Others are products of photosynthesis.)  
11. **Ans: C) Oxygen** (Others are related to nitrogen fixation.)

12. **Ans: D) Carotenoids** (Others are directly involved in photosynthesis.)

## **VII. Answer the following questions:**

1. What is autotrophic nutrition?

**Ans:** Autotrophic nutrition is a mode of nutrition in which organisms make their own food using sunlight, carbon dioxide, and water. Green plants, algae, and some bacteria perform this process through photosynthesis.

2. What is heterotrophic nutrition?

**Ans:** Heterotrophic nutrition is the mode of nutrition in which organisms depend on other plants or animals for their food. Animals, fungi, and many bacteria follow this type of nutrition.

3. What is photosynthesis?

**Ans:** Photosynthesis is the process by which green plants prepare their own food using sunlight, carbon dioxide, and water. Oxygen is released as a byproduct during this process.

4. What is a parasitic plant?

**Ans:** A parasitic plant is a plant that lives on another plant and absorbs nutrients from it. An example is *Cuscuta*, which lacks chlorophyll and depends on the host plant for food.

5. What is bacteria?

**Ans:** Bacteria are microscopic, single-celled organisms found everywhere. Some are helpful in processes like digestion and medicine production, while others cause diseases.

6. What is symbiosis?

**Ans:** Symbiosis is a close relationship between two organisms in which both benefit. An example is lichens, where algae and fungi live together and help each other survive.

7. What are the uses of fungi?

**Ans:** Fungi are used in making bread, alcohol, and medicines like antibiotics. They also help decompose organic matter and recycle nutrients in the ecosystem.

8. What are the factors that affect photosynthesis?

**Ans:** The factors that affect photosynthesis include sunlight, carbon dioxide, water, and temperature. A shortage in any of these can reduce the rate of photosynthesis.

9. What is an insectivorous plant?

**Ans:** An insectivorous plant is one that traps and digests insects to get nutrients, especially nitrogen. Examples include the Venus flytrap and pitcher plant.

10. How is the need for nitrogen fertilizers reduced by growing leguminous crops?

**Ans:** Leguminous plants like beans and peas have *Rhizobium* bacteria in their roots that fix nitrogen from the air. This reduces the need for adding nitrogen fertilizers to the soil.

## EXERCISE – 4

### I. Choose the Correct Answer:

1. What is the primary function of carbohydrates? **Ans:** A) To provide energy
2. Which is a good source of proteins? **Ans:** A) Milk
3. Where do humans primarily get fats from? **Ans:** B) Butter and ghee
4. Which nutrient boosts immunity? **Ans:** B) Vitamins
5. What type of nutrition do plants have? **Ans:** A) Autotrophic
6. What is the primary function of water in the body? **Ans:** B) Maintains body fluids balance
7. Which organisms are heterotrophic? **Ans:** B) Humans
8. Which step follows food absorption? **Ans:** A) Assimilation
9. What is the first step in the process of digestion? **Ans:** B) Ingestion
10. Which animal uses proboscis for feeding on nectar? **Ans:** B) Hummingbird
11. What do mosquitoes use for feeding? **Ans:** B) Proboscis
12. What is the feeding habit of sponges? **Ans:** B) Filtering food from water
13. What is the function of the contractile vacuole in an amoeba?  
**Ans:** B) To expel excess water
14. Which part of the human digestive system is responsible for the initial breakdown of food?  
**Ans:** B) Mouth
15. What role do salivary glands play in digestion? **Ans:** A) Breaks starch into sugars
16. Which type of teeth is used for biting food? **Ans:** B) Incisors
17. What is in saliva that helps break down starch? **Ans:** B) Amylase
18. What is the function of the oesophagus? **Ans:** B) To transfer food to the stomach
19. What does hydrochloric acid do in the stomach? **Ans:** B) To kill bacteria
20. Where is bile produced in the human body? **Ans:** C) Liver
21. What does the pancreas secrete? **Ans:** B) Pancreatic juice
22. What is absorbed in the small intestine? **Ans:** B) Nutrients
23. What is the main work of villi in the small intestine?  
**Ans:** B) To increase surface area for absorption
24. Where does most nutrient absorption take place in the digestive system? **Ans:** C) Small intestine
25. Which nutrient is absorbed by the lacteal in the small intestine? **Ans:** A) Fats
26. What is the function of the large intestine? **Ans:** C) Absorption of water
27. What is the process of eliminating undigested food called? **Ans:** C) Egestion
28. What is rumination in ruminants? **Ans:** B) Re-chewing cud for further digestion
29. What part of the ruminant stomach helps in cellulose digestion? **Ans:** B) Rumen
30. What is the role of the omasum in ruminants? **Ans:** B) Further digestion of food
31. What does bile help in the digestion of? **Ans:** B) Fats
32. Which one is a function of the stomach? **Ans:** D) None of these
33. What is the pH of saliva in the human mouth? **Ans:** B) 6.8
34. How long is the human small intestine? **Ans:** B) 7.5 meters
35. What is the main function of the large intestine? **Ans:** A) Absorb water and salts

## II. Say True or False

- |                                                                                   |                    |
|-----------------------------------------------------------------------------------|--------------------|
| 1. Carbohydrates are the primary source of energy for the body.                   | <b>Ans:</b> True   |
| 2. Proteins are used by the body for energy storage.                              | <b>Ans:</b> False  |
| 3. Fats help in the absorption of fat-soluble vitamins.                           | <b>Ans:</b> True   |
| 4. Roughage is essential for digestion and preventing constipation.               | <b>Ans:</b> True   |
| 5. Water plays a crucial role in maintaining body temperature and fluid balance.  | <b>Ans:</b> True   |
| 6. Humans are autotrophic organisms.                                              | <b>Ans:</b> False  |
| 7. Amoeba uses pseudopodia for capturing food.                                    | <b>Ans:</b> True   |
| 8. The process of digestion begins in the stomach.                                | <b>Ans:</b> False  |
| 9. Salivary amylase starts the digestion of proteins in the mouth.                | <b>Ans :</b> False |
| 10. Incisors are used for cutting food.                                           | <b>Ans:</b> True   |
| 11. The oesophagus is involved in the absorption of nutrients.                    | <b>Ans:</b> False  |
| 12. The pancreas produces digestive enzymes and insulin.                          | <b>Ans:</b> True   |
| 13. Villi are responsible for increasing the surface area in the small intestine. | <b>Ans:</b> True   |
| 14. The large intestine primarily absorbs nutrients.                              | <b>Ans:</b> False  |
| 15. The process of egestion is the elimination of undigested food.                | <b>Ans:</b> True   |
| 16. Ruminants have a single-chambered stomach.                                    | <b>Ans:</b> False  |
| 17. The abomasum in ruminants is similar to the human stomach.                    | <b>Ans:</b> True   |
| 18. Bile is produced in the liver and stored in the gall bladder.                 | <b>Ans:</b> True   |
| 19. The small intestine absorbs both water and nutrients.                         | <b>Ans:</b> False  |
| 20. The stomach produces hydrochloric acid to aid in protein digestion.           | <b>Ans:</b> True   |
| 21. Ruminants regurgitate their food to chew it again for further digestion.      | <b>Ans:</b> True   |
| 22. Bacteria in the mouth help break down starches in the food.                   | <b>Ans:</b> True   |
| 23. The process of absorption occurs mostly in the small intestine.               | <b>Ans:</b> True   |
| 24. The gall bladder produces bile.                                               | <b>Ans:</b> False  |

## III. Match the Following

### Set 1:

- |                  |                            |
|------------------|----------------------------|
| 1. Carbohydrates | → D. Energy storage        |
| 2. Proteins      | → C. Growth & repair       |
| 3. Vitamins      | → A. Improves digestion    |
| 4. Water         | → E. Maintains hydration   |
| 5. Roughage      | → B. Prevents constipation |

### Set 2:

- |                    |                                 |
|--------------------|---------------------------------|
| 1. Stomach         | → D. Digestion of proteins      |
| 2. Liver           | → C. Secretes bile              |
| 3. Small Intestine | → E. Absorption of nutrients    |
| 4. Pancreas        | → A. Produces digestive enzymes |
| 5. Large Intestine | → B. Absorbs water              |

**Set 3:**

1. Goat → C. Herbivore
2. Spider → D. Predatory feeder
3. Hummingbird → E. Nectar feeder
4. Sponge → A. Filter feeder
5. Mosquito → B. Blood feeder

**IV. Multi-Correct Answer Type Questions**

1. Which of the following are sources of protein?

**Ans:** A) Milk, B) Eggs, D) Meat

2. Which are parts of the human digestive system?

**Ans:** A) Esophagus, C) Stomach, D) Small intestine

3. Which are the types of teeth found in humans?

**Ans:** A) Incisors, B) Canines, C) Molars, D) Premolars

4. Which of the following are sources of roughage?

**Ans:** A) Wholemeal cereals, B) Vegetables, D) Fruits

5. Which nutrients are required by the human body?

**Ans:** A) Carbohydrates, B) Proteins, C) Water

6. Which are the feeding habits found in animals?

**Ans:** A) Herbivores, B) Carnivores, C) Omnivores

7. Which secretions are produced by digestive glands?

**Ans:** A) Saliva, B) Bile, D) Gastric juice

8. Which are the parts of the human alimentary canal?

**Ans:** A) Large intestine, C) Anus, D) Stomach

9. Which are the types of feeders in animals?

**Ans:** A) Filter feeders, B) Predators, C) Parasites

10. Which nutrients aid in tissue growth and repair?

**Ans:** A) Proteins, D) Vitamins

**V. Choose the Odd Man Out:**

1. **Ans:** C) Carrot (*Others are fruits*)
2. **Ans:** D) Ammonia (*Others are gases; ammonia is a compound*)
3. **Ans:** D) Rice (*Others are protein sources*)
4. **Ans:** D) Heart (*Not part of the digestive system*)
5. **Ans:** D) Chlorophyll (*Not related to digestion*)
6. **Ans:** C) Frog (*Others are unicellular/microscopic*)
7. **Ans:** C) Roughage (*Others are nutrients*)
8. **Ans:** B) Leech (*Others are nectar feeders*)
9. **Ans:** D) Enzymes (*Others are nutrients*)

10. **Ans:** C) Mouth (*Others are intestines/stomach*)  
11. **Ans:** D) Bile (*Others are digestive juices; bile emulsifies fats*)  
12. **Ans:** C) Rectum (*Others are ruminant stomach chambers*)

## VI. Reasoning Type Questions

1. **Assertion :** Carbohydrates are the main source of energy for the human body.  
**Reason :** Carbohydrates break down into glucose, which the body uses for energy.  
**Ans:** (a) Both correct; Reason explains Assertion.
2. **Assertion :** The human digestive system involves mechanical and chemical digestion.  
**Reason :** Human lungs are part of the digestive system.  
**Ans:** (d) Assertion correct; Reason incorrect (*Lungs are respiratory*).
3. **Assertion :** Vitamin C helps in increasing immunity and resistance to diseases.  
**Reason :** Vitamin C is a powerful antioxidant that helps strengthen the immune system.  
**Ans:** (a) Both correct; Reason explains Assertion.
4. **Assertion :** Water is essential for the absorption of nutrients in the body.  
**Reason :** Water transports nutrients through the bloodstream to organs and tissues.  
**Ans:** (a) Both correct; Reason explains Assertion.
5. **Assertion :** The stomach produces hydrochloric acid to aid digestion.  
**Reason :** Hydrochloric acid breaks down food and kills bacteria in the stomach.  
**Ans:** (a) Both correct; Reason explains Assertion.
6. **Assertion :** The small intestine is the main site of digestion and nutrient absorption.  
**Reason :** The small intestine's villi increase surface area for absorption.  
**Ans:** (a) Both correct; Reason explains Assertion.
7. **Assertion :** Herbivores have flat teeth suited for grinding plant material.  
**Reason :** Herbivores have flat teeth for grinding plant material for digestion.  
**Ans:** (a) Both correct; Reason explains Assertion.
8. **Assertion :** The human liver secretes bile, which helps in fat digestion.  
**Reason :** Bile emulsifies fats, breaking them into smaller droplets for better digestion by enzymes.  
**Ans:** (a) Both correct; Reason explains Assertion.

## VII. Answer the following questions:

1. Write the name of three nectar feeders.  
**Ans:** Butterfly, honeybee, and hummingbird are three nectar feeders. They drink sweet liquid from flowers.
2. Write the name of two blood feeders.  
**Ans:** Mosquito and leech are two blood feeders. They suck blood from animals or humans.
3. Write the name of two predatory feeders.  
**Ans:** Frog and tiger are two predatory feeders. They hunt and eat other animals.

4. Write six parts of human digestive system.

**Ans:** The six parts of the human digestive system are: mouth, oesophagus, stomach, small intestine, large intestine, and anus.

5. Write the name of various types of teeth of human.

**Ans:** Humans have four types of teeth: incisors, canines, premolars, and molars.

6. Write few lines about oesophagus.

**Ans:** Oesophagus is a long, tube-like part that connects the mouth to the stomach. It helps in pushing the food down to the stomach.

7. What is the function of liver?

**Ans:** The liver produces a juice called bile. Bile helps in breaking down fats during digestion.

8. What is the function of gall bladder?

**Ans:** The gall bladder stores bile produced by the liver. It releases bile when food reaches the small intestine.

9. What is the function of pancreas?

**Ans:** The pancreas makes digestive juices that help to break down food. It also helps in controlling the sugar level in the body.

10. What is the function of small intestine?

**Ans:** The small intestine breaks down the food fully and absorbs nutrients from it into the blood.

11. What is the function of large intestine?

**Ans:** The large intestine absorbs water from the leftover food. It also stores waste until it leaves the body.

12. What is assimilation?

**Ans:** Assimilation is the process where the absorbed food is used by the body to give energy and help in growth.

## EXERCISE - 5

### I. Choose the correct Answer:

1. What is the main energy source for cellular respiration? **Ans:** b) Glucose
2. What does aerobic respiration require? **Ans:** a) Oxygen
3. What is the byproduct of aerobic respiration? **Ans:** b) Carbon dioxide
4. Which part of the body is primarily responsible for exchanging gases during breathing? **Ans:** b) Lungs
5. Which respiration occurs without oxygen? **Ans:** b) Anaerobic
6. What is the product of anaerobic respiration in muscles? **Ans:** b) Lactic acid
7. Which organisms use lungs for respiration? **Ans:** b) Frog
8. In humans, which organ aids oxygen intake? **Ans:** b) Lungs
9. What is produced when glucose is broken down in the absence of oxygen? **Ans:** c) Lactic acid
10. Which part of the respiratory system traps dust and germs? **Ans:** b) Nose
11. Where does gas exchange occur in the lungs? **Ans:** b) Alveoli
12. What happens to the diaphragm during exhalation? **Ans:** c) It moves upward
13. Which structure carries oxygen to the cells in the blood? **Ans:** b) Red blood cells
14. What process occurs in the mitochondria of cells? **Ans:** c) Cellular respiration
15. Which is NOT involved in cellular respiration? **Ans:** c) Nitrogen
16. Which gas is removed from the body during exhalation? **Ans:** b) Carbon dioxide
17. What is the main function of the respiratory system? **Ans:** b) Gas exchange
18. Which part of the human respiratory system is also called the windpipe? **Ans:** a) Trachea
19. Which structure in plants helps in the exchange of gases? **Ans:** b) Stomata
20. Which organism uses gills to breathe? **Ans:** b) Fish
21. During exhalation, what happens to the lungs? **Ans:** b) They contract
22. In which organ does gas exchange happen in fish? **Ans:** b) Gills
23. What happens to the air when it passes through the nose? **Ans:** a) It is filtered and warmed
24. Which type of respiration is used by yeast? **Ans:** a) Anaerobic Respiration
25. What do plants release as a byproduct of respiration? **Ans:** b) Carbon dioxide
26. What does the diaphragm do during inhalation? **Ans:** b) Moves downward
27. What is the end product of aerobic respiration? **Ans:** b) Carbon dioxide
28. What is used in the breakdown of glucose during cellular respiration? **Ans:** b) Oxygen
29. Which gas do plants absorb for photosynthesis? **Ans:** b) Carbon dioxide
30. Which part of the respiratory system helps in sound production? **Ans:** b) Larynx
31. Which process occurs when oxygen is available to the cells? **Ans:** b) Aerobic Respiration
32. Which animal respire through skin? **Ans:** b) Earthworm
33. What happens to the body when carbon dioxide builds up in the blood? **Ans:** a) It causes fatigue
34. In which part of the human respiratory system does oxygen from the air enter the blood? **Ans:** a) Alveoli
35. Which of the following organisms respire both through skin and lungs? **Ans:** a) Frog

## II. Say True or False:

1. Cellular respiration is the process of breaking down food to release energy. **Ans: True**
2. Oxygen is used in anaerobic respiration. **Ans: False**
3. Lactic acid is produced in human muscles during aerobic respiration. **Ans: False**
4. Aerobic respiration occurs with oxygen. **Ans: True**
5. The main product of aerobic respiration is glucose. **Ans: False**
6. In anaerobic respiration, glucose is completely broken down to carbon dioxide and water. **Ans: False**
7. The diaphragm lowers during exhalation. **Ans: False**
8. Insects respire through spiracles. **Ans: True**
9. Hemoglobin in red blood cells carries oxygen. **Ans: True**
10. During inhalation, the ribs move downward and inward. **Ans: False**
11. Plants only respire during the night. **Ans: False**
12. Exhalation increases lung air pressure. **Ans: True**
13. The process of fermentation is a type of anaerobic respiration. **Ans: True**
14. Anaerobic respiration produces more energy than aerobic respiration. **Ans: False**
15. The lungs are responsible for gas exchange in humans. **Ans: True**
16. Fish breathe through gills. **Ans: True**
17. The human respiratory system includes the trachea, bronchi, and alveoli. **Ans: True**
18. Plants release oxygen during respiration at night. **Ans: False**
19. The respiratory system helps in the removal of carbon dioxide from the body. **Ans: True**
20. The process of cellular respiration occurs in the mitochondria of cells. **Ans: True**
21. The human respiratory system consists of the lungs, heart, and blood vessels. **Ans: False**
22. The carbon dioxide produced during cellular respiration is released through the skin. **Ans: False**
23. Earthworms can breathe through their skin. **Ans: True**
24. Glucose is formed in aerobic respiration. **Ans: False**

## III. Match the following:

### Set 1:

1. Internal Respiration → A) Process Involving Oxygen and Cells
2. Respiration in Fish → D) Gas Exchange in Gills
3. Carbonic Acid → E) Chemical Compound Formed in Limewater
4. Lactic Acid → B) Found in Muscles
5. Yeast → C) Anaerobic Organism

### Set 2:

1. Oxygen → B) Oxygen Delivery to Cells
2. Fermentation → D) Anaerobic Process in Yeast
3. Tracheal Respiration → E) Gas Exchange in Insects
4. Diaphragm → A) Breathing Organ in Humans
5. Stomata → C) Gas Exchange in Plants

#### **IV. Multi Correct Answer type questions:**

1. Which of the following are involved in the process of cellular respiration?

**Ans:** a) Oxygen, b) Glucose, d) Water

2. Which are products of aerobic respiration?

**Ans:** a) Carbon dioxide, c) Water, d) Energy

3. Which of the following are organs in the human respiratory system?

**Ans:** a) Lungs, c) Trachea

4. Which of the following are types of respiration?

**Ans:** a) Aerobic respiration, b) Anaerobic respiration

5. Which of the following are processes in which oxygen is consumed?

**Ans:** a) Breathing, b) Cellular respiration

6. Which are parts of the human respiratory system?

**Ans:** a) Diaphragm, c) Pharynx

7. Which organisms respire anaerobically?

**Ans:** a) Yeast, d) Bacteria

8. Which gases are involved in respiration?

**Ans:** a) Carbon dioxide, c) Oxygen

9. Which of the following support photosynthesis?

**Ans:** a) Water, b) Carbon dioxide, d) Sunlight

10. Which organisms use gills for respiration?

11. **Ans:** a) Fish

#### **V. Choose the Odd Man Out:**

1. **Ans:** d) Nitrogen

2. **Ans:** d) Nerve cells

3. **Ans:** d) Nitrogen

4. **Ans:** c) Heart

5. **Ans:** b) Frog

6. **Ans:** c) Glucose

7. **Ans:** d) Diaphragm

8. **Ans:** b) Cockroach

9. **Ans:** d) Tracheae

10. **Ans:** d) Oxygen

#### **VI. Reasoning Type Questions:**

1. **Assertion :** Oxygen is required for aerobic respiration.

**Reason :** In aerobic respiration, glucose is broken down with oxygen to release energy.

**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.

2. **Assertion** : Breathing is a physical process.  
**Reason** : Respiration is a biochemical process.  
**Ans:** b) Both are correct, but Reason is not the correct explanation for Assertion.
3. **Assertion** : Yeast performs anaerobic respiration, also known as fermentation.  
**Reason** : Yeast produces alcohol and  $\text{CO}_2$  when glucose is broken down anaerobically.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
4. **Assertion** : The diaphragm moves downward during inhalation.  
**Reason** : The diaphragm is a part of our digestive system.  
**Ans:** c) Assertion is correct, but Reason is incorrect.
5. **Assertion** : Fish use gills to extract oxygen from water.  
**Reason** : Gills allow oxygen to enter the bloodstream and  $\text{CO}_2$  to exit into the water.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
6. **Assertion** : Lactic acid is formed during intense physical activity in humans.  
**Reason** : During vigorous exercise, oxygen demand exceeds oxygen supply, leading to the breakdown of glucose without oxygen.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
7. **Assertion** : Inhaled air has a higher concentration of oxygen than exhaled air.  
**Reason** : Oxygen is absorbed by the blood in the lungs and transported to the cells, while carbon dioxide is expelled from the body.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.

## VII. Answer the following questions:

1. What are the types of respiration?

**Ans:** There are two types of respiration: aerobic respiration (with oxygen) and anaerobic respiration (without oxygen).

2. What is internal respiration?

**Ans:** Internal respiration is the exchange of gases between the blood and body cells. Oxygen goes into the cells, and carbon dioxide comes out.

3. What is external respiration?

**Ans:** External respiration is the exchange of gases between the lungs and the air. Oxygen enters the blood from the lungs, and carbon dioxide is removed.

4. What is the difference between breathing and respiration?

**Ans:** Breathing is the physical process of taking in oxygen and giving out carbon dioxide. Respiration is a chemical process where food breaks down to give energy.

5. What is inhalation and exhalation?

**Ans:** Inhalation is the process of taking air (with oxygen) into the lungs. Exhalation is the process of giving out air (with carbon dioxide) from the lungs.

6. What is tracheal respiration?

**Ans:** Tracheal respiration happens in insects like grasshoppers and houseflies. They breathe through tiny holes in their body called spiracles, which connect to tubes called tracheae.

7. How do frogs respire?

**Ans:** Frogs breathe through their moist skin, lungs, and also through their mouth lining. They can use their skin to breathe when in water.

8. How do plants respire?

**Ans:** Plants take in oxygen and give out carbon dioxide through tiny pores called stomata. They also respire through their roots and stems.

9. Write the chemical equation that shows the breaking of glucose to carbon dioxide and water.

**Ans:** Glucose + Oxygen  $\rightarrow$  Carbon dioxide + Water + Energy



10. Write the chemical equation of aerobic respiration.

**Ans:**  $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{Energy (ATP)}$

This shows that glucose and oxygen give carbon dioxide, water, and energy during aerobic respiration.

## EXERCISE - 7

### I. Choose the correct Answer:

1. What do plants use to make food? **Ans:** a) Photosynthesis
2. Which forest layer is characterized by dense trees around 100 feet tall? **Ans:** a) Canopy Layer
3. Which animal is commonly found in the emergent layer of a tropical rainforest? **Ans:** b) Toucans
4. Which gas do plants absorb during photosynthesis? **Ans:** b) Carbon dioxide
5. Which gas do plants release during photosynthesis? **Ans:** a) Oxygen
6. What do herbivores primarily eat? **Ans:** a) Plants
7. Forests contribute to the purification of air by releasing: **Ans:** b) Oxygen
8. What role do forests play in the water cycle? **Ans:** b) Regulating water flow
9. What is the process of water loss in plants? **Ans:** b) Transpiration
10. Which layer has the tallest trees in the forest? **Ans:** a) Emergent
11. Which forest product is essential for the production of paper? **Ans:** b) Wood pulp
12. The presence of forests helps in controlling: **Ans:** a) Soil erosion
13. What is one benefit of forests in controlling floods? **Ans:** a) Absorb excess water
14. Which of the following is a consequence of deforestation? **Ans:** c) Climatic imbalance
15. What can cause desertification in an area? **Ans:** a) Overgrazing
16. Which of these is a common animal found in the forest floor layer? **Ans:** b) Mice
17. What is the main cause of forest fires? **Ans:** b) Lightning strikes
18. Which organism breaks down dead plants and animals? **Ans:** b) Decomposer
19. Which of the following is considered a primary consumer? **Ans:** c) Rabbits
20. Which animal is a top carnivore? **Ans:** a) Lion
21. Which of the following is an example of a decomposer? **Ans:** b) Mushroom
22. Which forest layer is most abundant in terms of biodiversity? **Ans:** b) Canopy Layer
23. Which layer has the tallest trees in a rainforest? **Ans:** c) Emergent Layer
24. What is the main function of roots in plants? **Ans:** b) Water absorption
25. What do secondary consumers eat? **Ans:** b) Herbivores
26. For what do plants depend on animals in a forest ecosystem? **Ans:** a) Pollination
27. Which activity contributes to deforestation? **Ans:** b) Urban expansion
28. Which of these is not a forest product? **Ans:** c) Coal
29. What role does transpiration play in forests? **Ans:** a) It cools the surrounding environment
30. Which layer is crucial for nutrient cycling and maintaining soil health? **Ans:** a) Forest Floor
31. Which layer of the forest is closest to the ground? **Ans:** a) Forest floor
32. Which of these actions helps conserve forests? **Ans:** a) Planned harvesting
33. Which animal would most likely be found in the understory layer? **Ans:** a) Frogs
34. Which method helps to reduce pressure on forests? **Ans:** b) Recycling

## II. Say True or False:

- |                                                                              |                   |
|------------------------------------------------------------------------------|-------------------|
| 1. The emergent layer of a forest receives the least amount of sunlight.     | <b>Ans:</b> False |
| 2. The understorey layer is home to many small plants and animals.           | <b>Ans:</b> True  |
| 3. Forests purify air by absorbing oxygen.                                   | <b>Ans:</b> False |
| 4. Forests play a vital role in the water cycle.                             | <b>Ans:</b> True  |
| 5. The forest floor houses the tallest trees.                                | <b>Ans:</b> False |
| 6. Deforestation can increase biodiversity.                                  | <b>Ans:</b> False |
| 7. Primary consumers are herbivores that feed on producers.                  | <b>Ans:</b> True  |
| 8. Secondary consumers feed on primary consumers.                            | <b>Ans:</b> True  |
| 9. The canopy layer consists of small, low trees.                            | <b>Ans:</b> False |
| 10. The forest floor is rich in decomposers and nutrients.                   | <b>Ans:</b> True  |
| 11. Forest fires always have negative impacts on the ecosystem.              | <b>Ans:</b> False |
| 12. Deforestation can contribute to climate change.                          | <b>Ans:</b> True  |
| 13. Transpiration is the process of plants absorbing water from the soil.    | <b>Ans:</b> False |
| 14. The forest ecosystem is self-sustaining with minimal external influence. | <b>Ans:</b> True  |
| 15. Forest plant roots minimize soil erosion.                                | <b>Ans:</b> True  |
| 16. Tropical rainforests are found only in tropical regions.                 | <b>Ans:</b> True  |
| 17. Decomposers break down organic matter and recycle nutrients.             | <b>Ans:</b> True  |
| 18. Forests boost soil fertility by preventing erosion.                      | <b>Ans:</b> True  |
| 19. Animals in the emergent layer often live near the ground.                | <b>Ans:</b> False |
| 20. Overgrazing contributes to deforestation and desertification.            | <b>Ans:</b> True  |
| 21. Forests provide shelter to various species, including humans.            | <b>Ans:</b> True  |
| 22. Forests regulate water flow and help in flood prevention.                | <b>Ans:</b> True  |
| 23. The canopy layer is the least biodiverse layer in a forest.              | <b>Ans:</b> False |
| 24. Forest mice is a mammal.                                                 | <b>Ans:</b> True  |

## III. Match the following:

### Set 1:

- |                      |   |                     |
|----------------------|---|---------------------|
| 1. Emergent Layer    | → | B. Tallest trees    |
| 2. Canopy Layer      | → | E. Dense tree layer |
| 3. Understorey Layer | → | C. Shaded, humid    |
| 4. Forest Floor      | → | D. Decomposers      |
| 5. Deforestation     | → | A. Loss of trees    |

### Set 2:

- |           |   |                                                |
|-----------|---|------------------------------------------------|
| 1. Timber | → | B. Used in construction and furniture          |
| 2. Gums   | → | C. Extracted from trees for medicinal purposes |
| 3. Spices | → | E. Used in food flavoring                      |
| 4. Resin  | → | A. Used in making rubber                       |
| 5. Latex  | → | D. Used for making paper products              |

#### IV. Multi Correct Answer type questions:

1. Which animals are commonly found in the emergent layer of the forest?

**Ans:** B. Toucans, D. Macaws

2. Which of these are renewable resources provided by forests?

**Ans:** A. Timber, B. Water, D. Medicinal plants

3. Which are types of forest layers?

**Ans:** A. Canopy, B. Understorey, D. Emergent

4. Which are methods of conserving forests?

**Ans:** A. Afforestation, C. Planned Harvesting, D. Recycling

5. Which of the following are primary consumers?

**Ans:** A. Cow, C. Rabbit

6. Which are examples of herbivores?

**Ans:** A. Cow, B. Elephant, D. Deer

7. Which plants are used for medicinal purposes?

**Ans:** A. Aloe Vera, B. Tulsi, D. Neem

8. Which of these are types of decomposers?

**Ans:** A. Bacteria, B. Fungi, D. Earthworms

9. Which of the following are forest products?

**Ans:** A. Timber, B. Rubber, D. Resin

10. Which of these are examples of carnivores?

**Ans:** A. Lion, B. Tiger, D. Wolf

#### V. Reasoning Type Questions:

1. **Assertion :** Trees play a vital role in balancing the carbon dioxide levels in the atmosphere.

**Reason :** Trees absorb carbon dioxide and release oxygen during photosynthesis.

**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.

2. **Assertion :** Forests are considered "green lungs" of the Earth.

**Reason :** Forests absorb harmful gases like carbon dioxide and release oxygen into the air.

**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.

3. **Assertion :** Soil erosion is more likely to occur in deforested areas.

**Reason :** The roots of trees help bind the soil particles and prevent soil erosion.

**Ans:** a) are correct, and Reason is the correct explanation for Assertion.

4. **Assertion :** The canopy layer of the forest receives abundant sunlight.

**Reason :** The canopy layer is formed by the thick branches and leaves of tall trees, blocking sunlight to lower layers.

**Ans:** b) Both are correct, but Reason is not the correct explanation for Assertion.

5. **Assertion** : Deforestation causes a loss of biodiversity.  
**Reason** : Deforestation destroys the habitats of many species, leading to their displacement or extinction.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
6. **Assertion** : Forests help in regulating the water cycle.  
**Reason** : Forests release water vapor into the atmosphere through transpiration, leading to cloud formation and rainfall.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
7. **Assertion** : Herbivores are primary consumers in the food chain.  
**Reason** : Herbivores consume plants, which are the primary producers in the food chain.  
**Ans:** a) Both Assertion and Reason are correct, and Reason is the correct explanation for Assertion.
8. **Assertion** : Forests act as carbon sinks.  
**Reason** : Trees absorb carbon dioxide from the atmosphere and store it in their biomass.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
9. **Assertion** : The forest floor layer is dark and damp.  
**Reason** : The thick canopy above blocks sunlight from reaching the forest floor.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
10. **Assertion** : Overgrazing by animals can lead to deforestation.  
**Reason** : Overgrazing by animals prevents the regrowth of plants, leading to soil degradation and deforestation.  
**Ans:** a) Both are correct, and Reason is the correct explanation for Assertion.
11. **Assertion** : Tiger is a producer.  
**Reason** : A producer makes its own food.  
**Ans:** d) Assertion is incorrect, but Reason is correct.

**VI. Choose the Odd Man Out:**

1. **Ans:** d) Rabbit  
2. **Ans:** d) Rose  
3. **Ans:** c) Snake  
4. **Ans:** c) Water  
5. **Ans:** d) Tulip  
6. **Ans:** c) Dog  
7. **Ans:** a) Eagle  
8. **Ans:** d) Fern  
9. **Ans:** d) Potato  
10. **Ans:** c) Elephant

## **VII. Answer the following questions:**

1. What are the different layers of forest?

**Ans:** The different layers of a forest are emergent layer, canopy layer, understorey layer, and forest floor. These layers have different types of plants and animals.

2. Define emergent layer (of forest).

**Ans:** The emergent layer is the topmost layer of the forest. It has the tallest trees that rise above all other plants to get sunlight.

3. Define canopy layer (of forest).

**Ans:** The canopy layer is just below the emergent layer. The branches and leaves of tall trees form a roof-like cover, providing shelter to many animals and birds.

4. Define understorey layer (of forest).

**Ans:** The understorey layer is below the canopy. It has small trees, shrubs, and bushes. Many insects and small animals live here.

5. What are the benefits of forests?

**Ans:** Forests give us fresh air (oxygen), wood, fruits, and medicines. They also help in rain formation, protect soil, and provide shelter to animals.

6. How do plants and animals depend on each other?

**Ans:** Plants give oxygen and food to animals, and animals give carbon dioxide to plants. Some animals help plants by spreading their seeds or pollinating flowers.

7. Define producer, consumer and decomposer.

**Ans:** Producers are plants that make their own food. Consumers are animals that eat plants or other animals. Decomposers are tiny organisms like fungi and bacteria that break down dead plants and animals.

8. Explain food chain.

**Ans:** A food chain shows how plants and animals are linked by what they eat. Example:  
Grass → Grasshopper → Frog → Snake → Eagle.

9. Explain food web.

**Ans:** A food web is made of many food chains linked together. It shows how one plant or animal can be part of many food chains in nature.

10. What are the main causes of deforestation?

**Ans:** The main causes of deforestation are cutting trees for wood, making space for farms, buildings, and roads, and mining. This harms the environment and wildlife.