

## CHAPTER 6 LIFE PROCESSES

(Blue Print – 1 X 1 = 1 and 3 X 2 = 6 Total Marks : 7)

### PART - A

1. In monotropa the special type of root which absorbs nourishment is the \_\_\_\_\_

- i) Haustoria ii) Mycorrhizal root iii) Clinging root iv) Adventitious root

**Answer:** ii) Mycorrhizal root

2. The product obtained in the anaerobic respiration of yeast is \_\_\_\_\_

- i) Lactic acid ii) Pyruvic acid iii) Ethanol iv) Acetic acid

**Answer:** iii) Ethanol

3. The roots of a coconut tree are seen growing far from the plant. Such a kind of movement of root for want of water is \_\_\_\_\_ .

- i) Phototropism ii) Geotropism iii) Chemotropism iv) Hydrotropism

**Answer:** iv) Hydrotropism

4. The xylem in the plants is responsible for \_\_\_\_\_.

- i) transport of water ii) transport of food iii) transport of amino acids iv) transport of oxygen

**Answer:** i) transport of water

5. The autotrophic nutrition requires

- i)  $\text{CO}_2$  and water ii) chlorophyll iii) sunlight iv) all the above

**Answer:** iv) all the above

6. Leaf pores / stomata help in \_\_\_\_\_.

- i) intake of  $\text{CO}_2$  during photosynthesis ii) release of  $\text{O}_2$  during photosynthesis  
iii) release of water vapour during transpiration iv) All of these

**Answer:** iv) All of these

7. \_\_\_\_\_ of green plants are called factories of food production.

- i) Mitochondria ii) Chloroplasts iii) Endoplasmic reticulum iv) Nucleus

**Answer:** ii) Chloroplasts

8. The special root-like structure of plant parasites in cuscuta and viscum are called \_\_\_\_\_ .

- i) Rhizoids ii) Haustoria iii) Hyphae iv) Stolons

**Answer:** ii) Haustoria

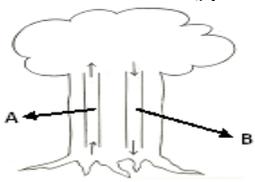
9. Pick out the odd one : The parts of the alimentary canal are

- i) pharynx ii) mouth iii) buccal cavity iv) pancreas

**Answer:** iv) pancreas

### PART - B

10. Name the types of vascular tissues in the plant stem which are labelled A and B.



- i) Name A and B

- ii) What materials are transported through A?

- iii) What materials are transported through B?

- iv) How do the materials in A move upwards to the leaves?

**Answer:** i. A - Xylem B - Phloem

ii. Water and minerals are transported through A ( Xylem).

iii. Food materials are transported through B (Phloem).

iv. The upwards movement of water (Ascent of sap) takes place with the help of the process **transpiration**. Evaporation of water molecules from the cells of a leaf creates a suction which pulls water from the xylem cells of roots.

11. What is nutrition? What type of nutrition is seen in green plants and the majority of animals?

**Answer: Nutrition:** Nutrition is the process of obtaining energy through consumption of food.

The types of Nutrition found in plants and animals are

1. **Autotrophic Nutrition.** They synthesize their own food materials by Photosynthesis. Eg. Most of the plants.

2. **Heterotrophic Nutrition.** They depend upon other organisms or dead organic matter for their food. Heterotrophic Nutrition are of two types.

**a. Parasitic** They live on other organisms for their food.

**b. Saprophytic** They obtain nutrients from non-living organic matter.

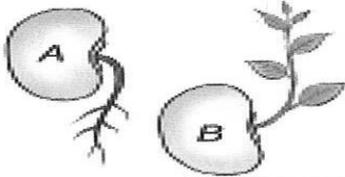
12. Match the methods of nutrition of special organs with suitable examples:

|             |             |           |
|-------------|-------------|-----------|
| Autotrophs  | Mycorrhiza  | Cuscutta  |
| Parasites   | Chlorophyll | Monotropa |
| Saprophytes | Haustoria   | Hibiscus  |

Answer:

|             |             |           |
|-------------|-------------|-----------|
| Autotrophs  | Chlorophyll | Hibiscus  |
| Parasites   | Haustoria   | Cuscutta  |
| Saprophytes | Mycorrhiza  | Monotropa |

13. Observe the diagram



- Mention the type of movements shown in figure A and B.
- How does this movement differ from the movement of mimosa?

Answer: a) A- **Geotropism** B - **Phototropism**

b) As no growth is involved in the movement of **Mimosa**, this movement is known as **movement independent of growth**.

As growth is involved in Geotropism and Phototropism, these two movement are known as **movement dependent on growth**.

14. In the process of anaerobic respiration, \_\_\_\_\_ is a 6 carbon compound which gets converted into \_\_\_\_\_ carbon compound called lactic acid.

Answer: In the process of anaerobic respiration, **Glucose** is a 6 carbon compound which gets converted into **3** carbon compound called lactic acid.

15. Sugar is converted into alcohol. In the above reaction what kind of process takes place? Which micro-organism is involved?

Answer: Sugar is converted into alcohol by the process **Fermentation**.

**Yeast** and some bacteria are involved in this process.

16. In human beings, air enters into the body through \_\_\_\_\_ and moves into \_\_\_\_\_. In fishes, water enters into the body through \_\_\_\_\_ and the dissolved oxygen diffuses into \_\_\_\_\_.

Answer: In human beings, air enters into the body through **nostrils** and moves into **lungs**. In fishes, water enters into the body through **mouth** and the dissolved oxygen diffuses into **blood**.

17. Give two examples of root parasites of plants. Mention the special structures present in them to draw the nutrients from the host plant.

Answer: 1. **Cuscuta** and **Viscum** are the examples of root parasites of plants.

2. These parasitic plants have some special roots, which penetrate the host plant and absorb food from the phloem, water and minerals from the xylem. These roots are called **haustoria**

18. What are saprophytes? Give two examples.

Answer: **Saprophytes** Some plants obtain nutrients from **non-living organic matter**. They are called saprophytes.

**Examples.** 1. Many **fungi** and **bacteria** are saprophytes.

2. Certain angiosperms like **Monotropa** lack chlorophyll and have **mycorrhizal roots**.

The plant absorbs nutrients from the humus through their mycorrhizal roots.

19. What is the length of the alimentary canal in human beings? List out the parts of the gastro-intestinal tract in the correct sequential order based on the passage of food.

Answer: The gastro-intestinal tract (alimentary canal) is a long muscular tube, about **9 mtrs** in length.

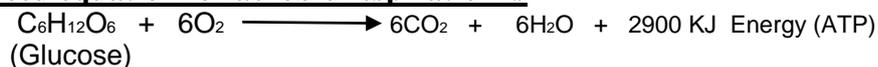
**The gastro-intestinal tract in the correct sequential order**

1. Mouth, 2. Buccal cavity, 3. Pharynx, 4. Oesophagus, 5. Stomach, 6. Small intestine, 7. Large intestine, 8. Rectum and 9. Anus

20. What is respiration? Give a balanced equation for aerobic respiration.

Answer: **Respiration:** Oxidation ( Degradation ) of organic food material **to release energy** in the form of biological substance called **ATP** (Adenosine triphosphate) is called respiration. In addition to ATP, two other substances formed during respiration are  $\text{CO}_2$  and  $\text{H}_2\text{O}$ .

**Balanced equation for aerobic respiration is**



21. A fish taken out of water can not survive for a long time. Why?

**Answer:** Like all other living creatures, fish too need oxygen for respiration. Fish get their supply of oxygen from water. They take water into their mouth, which passes through their gills. A fish's gills work only in water. This is why a fish taken out of water cannot survive for long time.

22. What are ammoniatelic and ureotelic animals? Give examples.

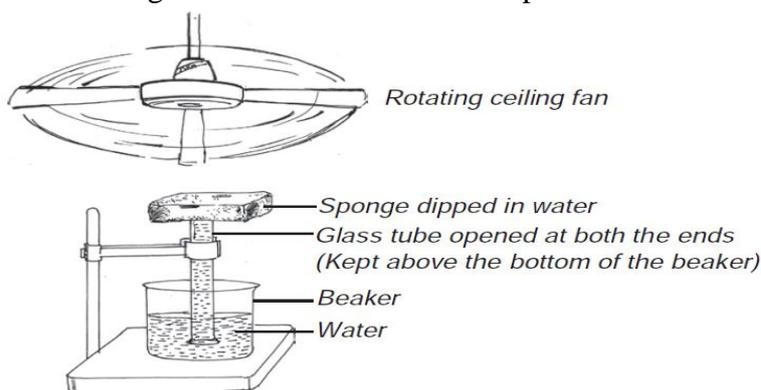
**Answer: 1. Ammoniatelic animals:** Large amounts of **ammonia** is found in **excreta** of some animals. They are called ammoniatelic animals. Eg. **Fishes**

**2. Ureotelic animals:** In some animals, **urea** is the main **excretory product**. So they are called ureotelic animals. Eg. **Mammals**

23. Describe the change that occurs in a touch-me-not plant when it is touched?

**Answer:** If we touch the touch-me-not plant at one point, all the leaflets show the folding movement. This indicates that the stimulus at one point is communicated. The folding effect of touch-me-not plant is caused by a change in the turgidity of the leaflets brought about by the movement of water into and out of the parenchymatous cells of the pulvinus or swollen leaf base.

24. Study the following model with which the transpiration mechanism in plants can be demonstrated



With which structure of the plant do you compare each of the following?

(i) Sponge (ii) Glass tube filled with water.

**Answer:** (i) Sponge - **Leaf with stomat**

(ii) Glass tube filled with water – **Stem and Xylem vessel.**

25. Describe the various movements of plants giving suitable examples.

**Answer: 1. Movement independent of growth:** **Growth is not involved** in this movement.

Eg. Movement of **Mimosa**.

**2. Movement dependent on growth:** **Growth is involved** in this movement.

- Phototropism** -Response of the plant in the direction of light . Eg. Stem
- Geotropism** - Response of the plant in the direction of gravitational force. Eg. Root
- Hydrotropism** - Response in the direction of water . Eg. Root
- Chemotropism** - Response in the direction of chemicals . Eg. Growth of Pollen Tube

26. Describe the various methods of excretion in animals.

**Answer:**

| No. | Animals                    | Methods of Excretion   |
|-----|----------------------------|--|
| 1.  | Unicellular protozoans     | Through the <b>contractile vacuoles</b> .  |
| 2.  | Coelenterates and sponges  | Through the <b>cell membrane</b> .   |
| 3.  | Flat worms and round worms | Through <b>excretory tubes</b> .   |
| 4.  | Annelids                   | Through special kidneys called <b>nephridia</b> .                                      |
| 5.  | Vertebrates                | Through well-defined excretory system with <b>kidneys</b> and <b>excretory tubes</b> . |

27. Compare the respiration in higher plants with the respiration in lower plants

Answer:

| No. | Respiration in higher plants  | Respiration in lower plants  |
|-----|---|--|
| 1.  | <b>Aerobic respiration</b> takes place here.                          | <b>Anaerobic respiration</b> takes place here                                  |
| 2.  | <b>Oxygen is utilized</b> for respiration.                            | <b>Oxygen is not utilized</b> for respiration.                                 |
| 3.  | Glucose is <b>completely oxidized</b> .                               | <b>Incomplete oxidation</b> of Glucose takes place.                            |
| 4.  | <b>More energy</b> is produced. ( 38 ATP)                             | <b>Less energy</b> is produced. ( 2 ATP )                                      |
| 5.  | The end products are <b>Co<sub>2</sub>, H<sub>2</sub>O and Energy</b> | The end products are <b>Ethenol or Lactic acid , Co<sub>2</sub> and Energy</b> |

28. In the touch - me - not plant the leaves show movements. What type of movement have you observed? Discuss.

Answer: As no growth is involved in the movement of **Mimosa**, this movement is known as **movement independent of growth**.

29. Differentiate extra-cellular digestion from intra-cellular digestion. Which one is an advanced form?

Answer:

| No. | Extra-cellular digestion   | Intra-cellular digestion   |
|-----|--|--|
| 1.  | This is the <b>advanced form</b> of digestion.   | This is the <b>very primitive form</b> of digestion.                               |
| 2.  | It takes place <b>outside the cell</b> .   | It takes place <b>inside the cell</b> .  |
| 3.  | Food enters into the body and passes through the <b>alimentary canal</b> .                                   | The food is directly taken into the cells and is digested <b>within the cell</b> . |
| 4.  | It consists of the <b>alimentary canal</b> and the <b>digestive glands</b> that to produce digestive juices. | It does <b>not require an organized digestive system</b> .                         |
| 5.  | Eg. <b>Higher animals and human being</b>  | Eg. <b>Protozoan, Sponges and Coelenterates,</b>                                   |

30. Differentiate aerobic respiration from anaerobic respiration. Mention the event that is common to both.

Answer:

| No.   | Aerobic Respiration   | Anaerobic Respiration  |
|---|---|--|
| 1.  | It takes place in <b>higher plants and animals</b> .                  | It takes place in <b>lower plants.(Yeast and Bacteria)</b> .                   |
| 2.  | <b>Oxygen is utilized</b> for respiration.                            | <b>Oxygen is not utilized</b> for respiration.                                 |
| 3.  | Glucose is <b>completely oxidized</b> .                               | <b>Incomplete oxidation</b> of Glucose takes place.                            |
| 4.  | <b>More energy</b> is produced. ( 38 ATP)                             | <b>Less energy</b> is produced. ( 2 ATP )                                      |
| 5.  | The end products are <b>Co<sub>2</sub>, H<sub>2</sub>O and Energy</b> | The end products are <b>Ethenol or Lactic acid , Co<sub>2</sub> and Energy</b> |
| <b>Glycolysis</b> is the common event for both Aerobic and Anaerobic Respiration. |   |  |

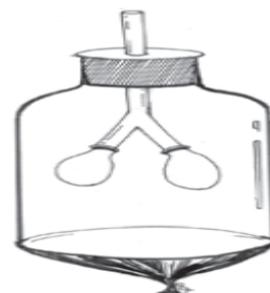
31. Observe the given model that can be used to demonstrate the breathing mechanism in human beings.

Name the structures which can be compared to:

(i) Lungs (ii) Diaphragm (iii) Trachea (iv) Nostrils (Nose)

Answer:

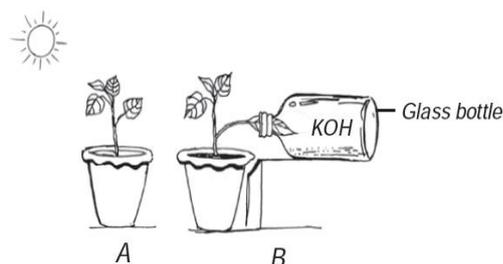
- (i) Lungs - Balloon.
- (ii) Diaphragm - Rubber sheet at the bottom of jar.
- (iii) Trachea - Plastic tube inserted into the jar.
- (iv) Nostrils (Nose) - Opening of plastic tube outside.



32. Observe the following figures:

Both the plants 'A' and 'B' were kept in sunlight after watering.

The part of the leaf of plant 'B' which was inserted in the glass bottle containing KOH (Potassium hydroxide) did not turn blue in the iodine test/ starch test, indicating the absence of starch. The part of the leaf outside the bottle turns blue in the said test.



i. Photosynthesis didn't occur in that part of the leaf due to the non-availability of \_\_\_\_\_ .

- a) Sunlight b) Chlorophyll c) CO<sub>2</sub> d) Water

ii. List out the factors which are available to the part of the leaf outside the bottle.

**Answer:** i. Photosynthesis didn't occur in that part of the leaf due to the non-availability of **CO<sub>2</sub>**

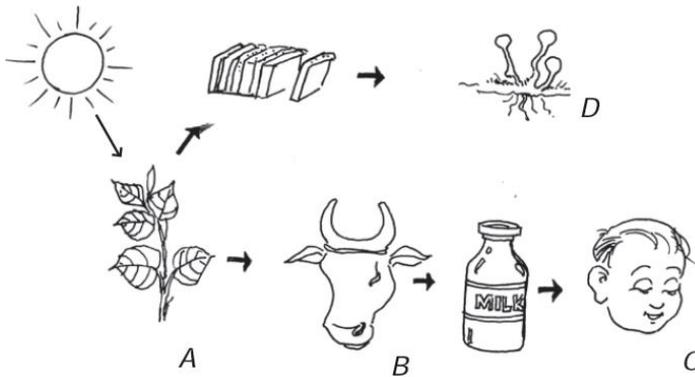
ii. The factors which are available to the part of the leaf outside the bottle are

1. CO<sub>2</sub>
2. Light and
3. Optimum temperature

**33.** Look at the illustration depicting the food chain:

a. The correct explanation of the organisms is:

|    | A            | B            | C            | D            |
|----|--------------|--------------|--------------|--------------|
| a. | Saprophyte   | Heterotrophs | Autotrophs   | Heterotrophs |
| b. | Heterotrophs | Autotrophs   | Saprophyte   | Saprophyte   |
| c. | Autotrophs   | Saprophyte   | Autotrophs   | Heterotrophs |
| d. | Autotrophs   | Heterotrophs | Heterotrophs | Saprophyte   |



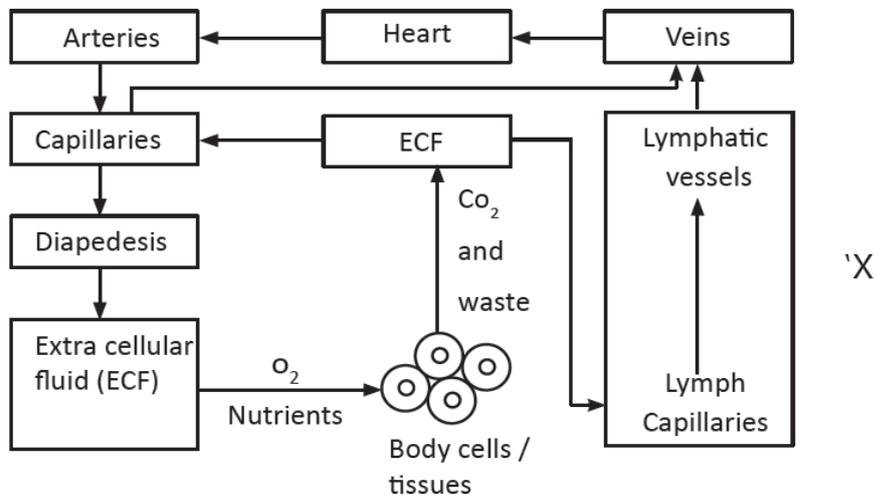
b. Why is "A" called an autotroph?

**Answer: a.**

|    | A          | B            | C            | D          |
|----|------------|--------------|--------------|------------|
|    | Plant      | Cow          | Child        | Fungi      |
| d. | Autotrophs | Heterotrophs | Heterotrophs | Saprophyte |

b. "A" is a plant. Plant can prepare its food material by the process Photosynthesis. So plants are called an autotroph.

**34.** Observe the following flow-chart:



a) What is 'X' in this figure denote?

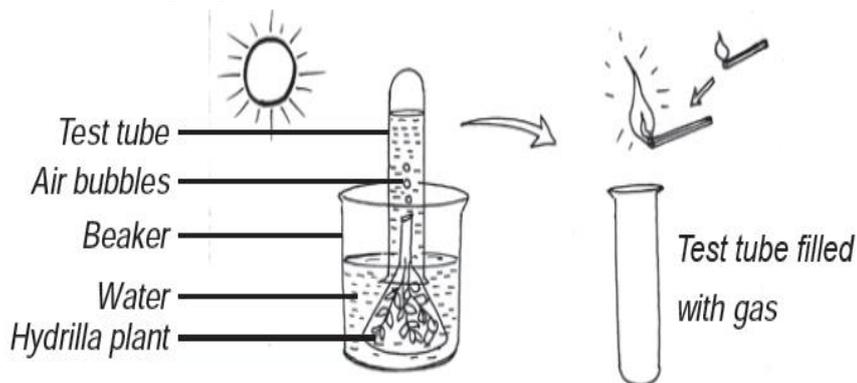
b) In what way is it different from blood?

**Answer: a.** 'X' in this figure denotes **Lymph**

b. Difference between Blood and Lymph

| No. | <b>Lymph</b>   | No. | <b>Blood</b>  |
|-----|--|-----|---|
| 1.  | It is a colourless fluid that does not contain RBCs.                                   | 1.  | It is a red-coloured fluid that contains RBCs.                      |
| 2.  | It contains plasma and lesser number of WBCs and platelets.                            | 2.  | It contains plasma, RBCs, WBCs, and platelets.                      |
| 3.  | It helps in body defense and is a part of the immune system.                           | 3.  | It is associated with the circulation of oxygen and carbon dioxide. |
| 4.  | It transports nutrients from the tissue cells to the blood, through lymphatic vessels. | 4.  | It transports nutrients and oxygen from one organ to another.       |
| 5.  | The flow of lymph is slow.   | 5.  | The flow of blood in the blood vessels is fast.                     |

35. Observe the following experiment:



i) Name the phenomenon it depicts and the gas that is released.

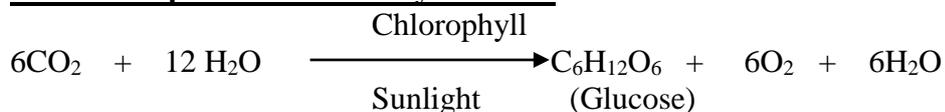
a) Respiration,  $\text{CO}_2$    b) Photosynthesis,  $\text{O}_2$    c) Transpiration,  $\text{H}_2\text{O}$    d) Excretion,  $\text{N}_2$

ii) What is photosynthesis? Write a balanced equation for this bio-chemical reaction.

**Answer:** i. The phenomenon it depicts **b) Photosynthesis,  $\text{O}_2$**

**ii. Photosynthesis:** The conversion of carbon-dioxide and water into carbohydrates in the presence of light and chlorophyll is known as photosynthesis.

**Balanced equation for Photosynthesis is**



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