

# CHAPTER – LIFE PROCESSES

## I. MULTIPLE TYPE QUESTIONS [MCQ'S 1 MARK EACH]

---

### EASY LEVEL

- The gas which is released during photosynthesis  
(a)  $\text{CO}_2$  (b)  $\text{O}_2$  (c)  $\text{N}_2$  (d)  $\text{SO}_2$
- What is the mode of nutrition in fungi?  
(a) Autotrophic (b) Heterotrophic (c) Saprophytic (d) Parasitic
- Select the correct statement  
(a) Heterotrophs do not synthesise their own food  
(b) Heterotrophs utilise solar energy for photosynthesis  
(c) Heterotrophs synthesise their own food  
(d) Heterotrophs are capable of converting carbon dioxide and water into carbohydrates
- Which is the correct sequence of parts in human alimentary canal?  
(a) Mouth → stomach → small intestine → oesophagus → large intestine  
(b) Mouth → oesophagus → stomach → large intestine → small intestine  
(c) Mouth → stomach → oesophagus → small intestine → large intestine  
(d) Mouth → oesophagus → stomach → small intestine → large intestine
- In which part of the alimentary canal food is finally digested?  
(a) Stomach (b) Mouth cavity (c) Large intestine (d) Small intestine
- The correct sequence of anaerobic reactions in yeast is  
(a) Glucose Pyruvate Ethanol + Carbondioxide (b) Glucose Pyruvate Lactic acid  
(c) Glucose Pyruvate Lactic acid (d) Glucose Pyruvate Ethanol + Carbondioxide
- During respiration exchange of gases take place in  
(a) trachea and (b) alveoli of lungs (c) alveoli and throat (d) throat and larynx
- The filtration units of kidneys are called  
(a) ureter (b) urethra (c) neurons (d) nephrons
- Oxygen liberated during photosynthesis comes from  
(a) water (b) chlorophyll (c) carbon dioxide (d) glucose

## II. ASSERTION AND REASON TYPE QUESTIONS [1 MARK EACH]

---

### EASY LEVEL

Directions: In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

- If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
  - If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
  - If Assertion is true but Reason is false.
  - If both Assertion and Reason are false.
- Assertion: Multicellular organisms need special organs for exchange of gases between their body and environment.  
Reason: They need more  $\text{O}_2$ , therefore need special organs like lungs.

2. Assertion: Carbon and energy requirements of autotrophs are full filled by photosynthesis.  
Reason: Autotrophs do not prepare their own food.
3. Assertion: Alveoli is designed to maximise the exchange of gases.  
Reason: The walls of alveoli have extensive network of blood vessels which help in exchange of gases.(E)
4. Assertion: Energy is used during the process of respiration.  
Reason: Respiration stores energy in the form of ATP.
5. Assertion: Transpiration is essential for plants.  
Reason: It helps in regulating temperature of the plant as transpiration (evaporation) cause cooling.
6. Assertion: Blood pressure is arterial blood pressure.  
Reason: It is measured by sphygmomanometer.
7. Assertion: Haemoglobin is the respiratory pigment in human beings.  
Reason: It transports oxygen in the human body.

### III. CASE BASED QUESTIONS

---

#### EASY LEVEL

Read the following and answer any four questions from 1(i) to 1(v) given below :

1. Life processes are the basic processes, which are being carried out for the survival of living entities. These processes are vital for sustaining life. Holozoic nutrition is the process of nutrition that takes place in organisms which take solid or liquid food inside their body. Amoeba follows holozoic nutrition. Holozoic nutrition in amoeba takes place in the following steps: 1. Ingestion 2. Digestion 3. Absorption 4. Assimilation 5. Egestion
  - i. The fluid that helps in transporting nutrients to all body cells:
 

(a) Serum	(b) Villi	(c) Large Intestine	(d) Blood and lymph
-----------	-----------	---------------------	---------------------
  - ii. This has a smaller intestine
 

(a) carnivore	(b) herbivore	(c) both (a) and (b)	(d) none of the above
---------------	---------------	----------------------	-----------------------
  - iii. The process of converting complex into simple substances:
 

(a) Ingestion	(b) Absorption	(c) Assimilation	(d) Digestion
---------------	----------------	------------------	---------------
  - iv. The assimilation process involves:
 

(a) Breakdown of glucose	(b) Removal of nitrogenous waste
(c) Obtaining energy from absorbed food	(d) Both a and b
  - v. The food to be egested is temporarily stored in:
 

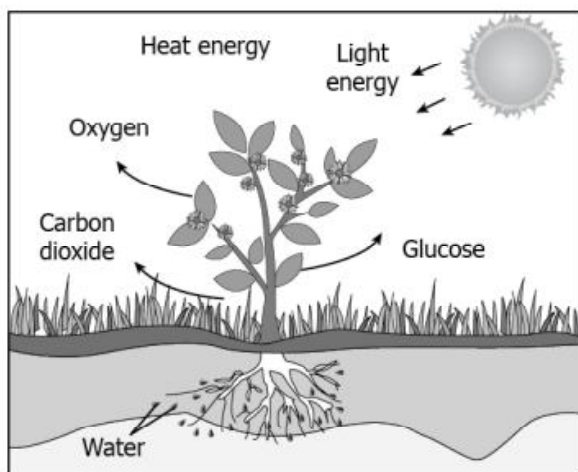
(a) Anus	(b) Caecum	(c) Vermiform appendix	(d) Rectum
----------	------------	------------------------	------------

#### IV. COMPETENCY BASED QUESTIONS

---

##### EASY LEVEL

1. The image shows the process of making food by a plant. Which statement can be concluded from the image?



- (a) plants absorb  $\text{CO}_2$  from air and  $\text{H}_2\text{O}$  from the soil as raw materials and convert them into glucose  
(b) plants absorb  $\text{CO}_2$  from the soil and  $\text{H}_2\text{O}$  from air as raw materials and convert them into glucose  
(c) plants absorb  $\text{O}_2$  from air and glucose from the soil as raw materials and convert them into light energy  
(d) plants absorb  $\text{O}_2$  from air and minerals from the soil as raw materials and convert them into heat energy

#### V. SHORT ANSWER TYPE QUESTIONS [2 MARKS EACH]

---

##### EASY LEVEL

1. What advantage over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration?
2. Differentiate between aerobic and anaerobic respiration.
3. State two vital functions of kidney.
4. Why is it necessary to separate oxygenated & deoxygenated blood in mammals & birds?
5. Why the walls of trachea are supported by cartilaginous rings?
6. What is the role of diaphragm during inhalation and exhalation?

#### VI. SHORT ANSWER TYPE QUESTIONS [3 MARKS EACH]

---

##### EASY LEVEL

1. What are the components of the transport system in human beings? What are the functions of these components?
2. What are different ways in which glucose is oxidized to provide energy in various organisms?
3. How respiration does takes place in plants?
4. Discuss the major steps involved in process of nutrition in human beings.
5. Explain the structure of chloroplast.

## VII. LONG ANSWER TYPE QUESTIONS [5 MARKS EACH]

---

### EASY LEVEL

1. With the help of a labelled diagram of human excretory system, Mention its important part and explain them.
2. Describe the structure and functioning of nephron.

## I. MULTIPLE TYPE QUESTIONS [MCQ'S 1 MARK EACH]

---

### MEDIUM LEVEL

1. Desert plant take up carbon dioxide during  
(a) Day (b) Night (c) Either day or night (d) Never take CO<sub>2</sub>
2. Protein is digested in which of the following organ.  
(a) mouth (b) stomach and small intestine  
(c) large intestine (d) stomach only
3. In which of the following groups of organisms, food material is broken down outside the body and absorbed?  
(a) Mushroom, green plants, Amoeba (b) Yeast, mushroom, bread mould  
(c) Paramecium, Amoeba, Cuscuta (d) Cuscuta, lice, tapeworm
4. The inner lining of stomach is protected by one of the following from hydrochloric acid. Choose the correct one  
(a) Pepsin (b) Mucus (c) Salivary amylase (d) Bile
5. Which part of alimentary canal receives bile from the liver?  
(a) Stomach (b) Small intestine (c) Large intestine (d) Oesophagus
6. Choose the function of the pancreatic juice from the following  
(a) trypsin digests proteins and lipase carbohydrates (b) trypsin digests emulsified fats and lipase proteins  
(c) trypsin and lipase digest fats (d) trypsin digests proteins and lipase emulsified fats
7. When air is blown from mouth into a test-tube containing lime water, the lime water turned milky due to the presence of  
(a) oxygen (b) carbon dioxide (c) nitrogen (d) water vapour
8. Which of the following is most appropriate for aerobic respiration?  
(a) Glucose Pyruvate CO<sub>2</sub> +H<sub>2</sub>O+ Energy (b) Glucose Pyruvate CO<sub>2</sub> +H<sub>2</sub>O+ Energy  
(c) Glucose Pyruvate + Energy CO<sub>2</sub> +H<sub>2</sub>O (d) Glucose Pyruvate + Energy CO<sub>2</sub> +H<sub>2</sub>O+ Energy
9. Which is the correct sequence of air passage during inhalation?  
(a) Nostrils → larynx → pharynx → trachea → lungs  
(b) Nasal passage → trachea → pharynx → larynx → alveoli  
(c) larynx → nostrils → pharynx → lungs  
(d) Nostrils → pharynx → larynx → trachea → alveoli
10. Choose the correct statement that describes arteries.  
(a) They have thick elastic walls, blood flows under high pressure; collect blood from different organs and bring it back to the heart  
(b) They have thin walls with valves inside, blood flows under low pressure and carry blood away from the heart to various organs of the body  
(c) They have thick elastic walls, blood flows under low pressure; carry blood from the heart to various organs of the body  
(d) They have thick elastic walls without valves inside, blood flows under high pressure and carry blood away from the heart to different parts of the body.

## II. ASSERTION AND REASON TYPE QUESTIONS [1 MARK EACH]

---

### MEDIUM LEVEL

Directions: In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
  - (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
  - (c) If Assertion is true but Reason is false.
  - (d) If both Assertion and Reason are false.
1. Assertion: Raw materials needed for photosynthesis are carbon dioxide, water and minerals.  
Reason: Nutrients provide energy to an organism.
  2. Assertion: If mucus is not secreted by gastric glands, inner lining of stomach may get damaged.  
Reason: HCl is secreted by gastric glands in stomach.
  3. Assertion: Respiration is a biochemical process opposite to photosynthesis.  
Reason: Energy is released during respiration.
  4. Assertion: Blood consist of a fluid medium called plasma in which RBC, WBC and other cells are present.  
Reason: Plasma transports food, CO<sub>2</sub> and nitrogeneous wastes in dissolved form.
  5. Assertion: Translocation of sugar occurs through the phloem.  
Reason: It is achieved by diffusion of sugars through phloem.
  6. Assertion: In human heart, there is no mixing of oxygenated and deoxygenated blood.  
Reason: Valves are present in the heart which allows the movement of blood in one direction only.
  7. Assertion: Blood of insects is colourless.  
Reason: The blood of insect does not play any role in transport of oxygen.

## III. CASE BASED QUESTIONS

---

### MEDIUM LEVEL

Read the following and answer any four questions from 1(i) to 1(v) given below :

Human digestive system consists of: Alimentary canal and associated glands. The alimentary canal is 9m long tube and associated glands secrets enzyme which helps in the digestion process. The associated glands are Salivary gland, Gastric gland, Pancreas, Liver & Intestinal gland.

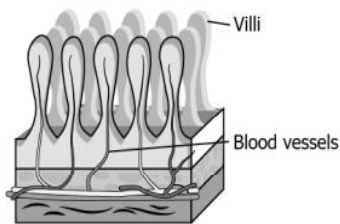
- i. The enzymes found in intestinal juice finally convert
  - (a) fats into fatty acids and glycerol
  - (b) proteins to amino acids
  - (c) complex carbohydrates into glucose
  - (d) all of these
- ii. The gland which is exocrine as well as endocrine:
  - (a) Liver
  - (b) Salivary gland
  - (c) Pancreas
  - (d) Intestinal gland
- iii. Which out of them work in acidic medium:
  - (a) Pancreatic juice
  - (b) Gastric juice
  - (c) Salivary amylase
  - (d) Intestinal juice
- iv. Pick the correct one
  - (a) Salivary amylase = Saliva + HCl
  - (b) Pancreas = Lipase + Trypsin + S.amylase
  - (c) Gastric juice = HCl + Pepsinogen + Renin
  - (d) Gastric juice = HCl + Pepsinogen + Renin+ mucus
- v. Mucus
  - (a) It is slimy layer
  - (b) It protects the stomach wall from corroding
  - (c) Forms inner lining of stomach
  - (d) All

#### IV. COMPETENCY BASED QUESTIONS

---

##### MEDIUM LEVEL

1. The image shows a cross section of small intestine. What will be the likely happen if the number of villi increases in the intestine?



- (a) increase in the absorption of food                      (b) fast elimination of waste from the body  
(c) increase in flow of blood in the small intestine      (d) fast breakdown of larger food particles into smaller ones

#### V. SHORT ANSWER TYPE QUESTIONS [2 MARKS EACH]

---

##### MEDIUM LEVEL

1. What is common for cuscuta, ticks and leeches?  
2. Differentiate between the Single and double circulation found in vertebrates.  
3. Name the substrates for the following enzymes :  
a. trypsin                      b. amylase                      c. pepsin                      d. lipase  
4. How is opening and closing of stomata regulated?  
5. What is the role of glomerulus in kidney?

#### VI. SHORT ANSWER TYPE QUESTIONS [3 MARKS EACH]

---

##### MEDIUM LEVEL

1. Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?  
2. How is oxygen and carbon dioxide transported in human beings?  
3. What is "translocation"? Why it is essential for plants.  
4. With the help of labelled diagram, discuss the structure of cross – section of leaf.  
5. What is the role of following in human digestive system –  
a) mucous                      b) Bicarbonate                      c) Trypsin

#### VII. LONG ANSWER TYPE QUESTIONS [5 MARKS EACH]

---

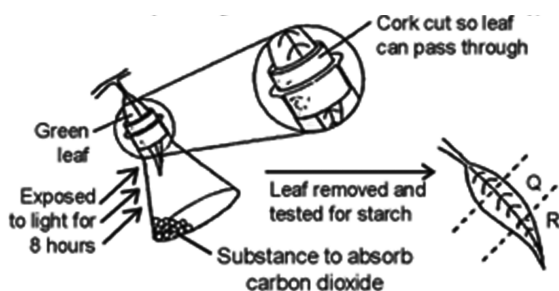
##### MEDIUM LEVEL

1. (i) Draw a well labeled diagram of human digestive system  
(ii) Describe the role of following in digestion :  
a) Bile                      b) Salivary amylase                      c) HCl  
2. Describe double circulation in human beings. Why is it necessary?

I. **MULTIPLE TYPE QUESTIONS [MCQ'S 1 MARK EACH]**

**DIFFICULT LEVEL**

- Which of the following statements about the autotrophs is incorrect?
  - They synthesise carbohydrate from carbon dioxide and water in the presence of sunlight and chlorophyll
  - They store carbohydrates in the form of starch
  - They convert carbon dioxide and water into carbohydrates in the absence of sunlight
  - They constitute the first trophic level in food chains
- A plant is kept in the dark for two days. A leaf is used in an experiment to investigate the effect of two factors on photosynthesis as shown in the diagram



What are the colours of Q and R, when the leaf is tested for starch, using iodine solution?

	Q	R
(a)	Blue/black	Brown
(b)	Brown	Brown
(c)	Blue/black	Blue/black
(d)	Brown	Blue/black

- Which of the following is an incorrect statement?
  - Organisms grow with time
  - Organisms must repair and maintain their structure
  - Movement of molecules does not take place among cells
  - Energy is essential for life processes
- If salivary amylase is lacking in the saliva, which of the following events in the mouth cavity will be affected?
  - Proteins breaking down into amino acids
  - Starch breaking down into sugars
  - Fats breaking down into fatty acids and glycerol
  - Absorption of vitamins
- A few drops of iodine solution were added to rice water. The solution turned blue-black in colour. This indicates that rice water contains
  - complex proteins
  - simple proteins
  - fats
  - starch
- Which of the following statement(s) is (are) true about respiration?
  - During inhalation, ribs move inward and diaphragm is raised
  - In the alveoli, exchange of gases takes place i.e., oxygen from alveolar air diffuses into blood and carbon dioxide from blood into alveolar air

- (iii) Haemoglobin has greater affinity for carbon dioxide than oxygen  
 (iv) Alveoli increase surface area for exchange of gases  
 (a) (i) and (iv)                      (b) (ii) and (iii)                      (c) (i) and (iii)                      (d) (ii) and (iv)
7. Which of the following statement (s) is (are) true about heart?  
 (i) Left atrium receives oxygenated blood from different parts of body while right atrium receives deoxygenated blood from lungs  
 (ii) Left ventricle pumps oxygenated blood to different body parts while right ventricle pumps deoxygenated blood to lungs  
 (iii) Left atrium transfers oxygenated blood to right ventricle which sends it to different body parts  
 (iv) Right atrium receives deoxygenated blood from different parts of the body while left ventricle pumps oxygenated blood to different parts of the body  
 (a) (i)                      (b) (ii)                      (c) (ii) and (iv)                      (d) (i) and (iii)
8. What prevents backflow of blood inside the heart during contraction?  
 (a) Valves in heart                      (b) Thick muscular walls of ventricles  
 (c) Thin walls of atria                      (d) All of the above
9. Single circulation i.e., blood flows through the heart only once during one cycle of passage through the body, is exhibited by  
 (a) Labeo, Chameleon, Salamander                      (b) Hippocampus, Exocoetus, Anabas  
 (c) Hyla, Rana, Draco                      (d) Whale, Dolphin, Turtle
10. In which of the following vertebrate group/groups, heart does not pump oxygenated blood to different parts of the body?  
 (a) Pisces and amphibians    (b) Amphibians and reptiles    (c) Amphibians only    (d) Pisces only

**II. ASSERTION AND REASON TYPE QUESTIONS [1 MARK EACH]**

---

**DIFFICULT LEVEL**

Directions: In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.  
 (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.  
 (c) If Assertion is true but Reason is false.  
 (d) If both Assertion and Reason are false.
1. Assertion: Digestion breaks large complex molecules to simple smaller molecules which can be easily absorbed.  
 Reason: Digestion is necessary for the absorption of all molecules.
2. Assertion: The release of energy in aerobic process is much more than in anaerobic process.  
 Reason: Each glucose molecule produces 2 molecules of ATP and 38 molecules of ATP in aerobic and anaerobic respiration, respectively.
3. Assertion: In the daytime, CO<sub>2</sub> generated during respiration is used up for photosynthesis.  
 Reason: There is no CO<sub>2</sub> release during day.



4. Assertion: Lungs always contain a residual volume of air.  
Reason: It provides sufficient time for oxygen to be absorbed and for carbon dioxide to be released.
5. Assertion: In woody plants, gaseous exchange occurs through lenticels.  
Reason: Lenticels are specialised cells found along with stomata on the stem of woody plants.
6. Assertion: All the arteries (except pulmonary artery) carry oxygenated blood from the heart to various organs.  
Reason: Pulmonary vein carries deoxygenated blood to the heart.

### III. CASE BASED QUESTIONS

---

#### DIFFICULT LEVEL

Read the following and answer any four questions from 1(i) to 1(v) given below :

1. The food that we eat gets broken down into simpler compounds for absorption. There are various enzymes and hormones secreted by various glands and cells of the digestive system, which facilitate the digestion of food. The undigested food is expelled out of the body through the anus. The main organs of the digestive system include the mouth, pharynx, oesophagus, stomach, small and large intestine, rectum and anus. There are various types of digestive glands present, e.g. salivary glands, pancreas, liver, etc.
  - i. The enzymes present in pancreatic juice are
 

(a) Amylase, Trypsinogen, Peptidase, Rennin	(b) Trypsinogen, Lipase, Amylase, Procarboxypeptidase
(c) Peptidase, Pepsin, Amylase, Rennin	(d) Maltase, Amylase, Trypsinogen, Pepsin
  - ii. Which gland produces bicarbonate ions and Trypsin:
 

(a) Stomach and liver	(b) Liver and Pancreas
(c) Intestine and Liver	(d) Salivary gland and Intestine
  - iii. Infants' gastric juice contains
 

(a) nuclease, pepsinogen, lipase	(b) maltase, pepsinogen,rennin
(c) amylase, rennin, pepsinogen	(d) pepsinogen, lipase, rennin
  - iv. The absorption of fructose by intestinal mucosa is
 

(a) co-transport mechanism	(b) simple diffusion
(c) facilitated transport	(d) active transport
  - v. Which of the following is synthesized and stored in the liver cells?
 

(a) Galactose	(b) Lactose	(c) Glycogen	(d) Arabinose
---------------	-------------	--------------	---------------

### IV. COMPETENCY BASED QUESTIONS

---

#### DIFFICULT LEVEL

1. A student sets up an experiment to study the importance of nutrition in plants. The student takes 2 pots, pot 1 and pot 2 each with the same healthy plant. Both the pots were placed in the garden and watered properly. Pot 1 was kept as such, while pot 2 was kept in an air tight glass box with caustic soda. Caustic soda absorbs carbon dioxide present in the surrounding. After 2 days, the student observes that the plant kept in the garden is healthy while the plant placed in container shed leaves and droops.

What is the likely reason for this observation?

(a) lack of nutrients in the soil

(b) absence of oxygen for survival

(c) inability to perform photosynthesis

(d) absorption of light by caustic soda restricting growth

**V. SHORT ANSWER TYPE QUESTIONS [2 MARKS EACH]**

---

**DIFFICULT LEVEL**

1. Differentiate between light reaction and dark reaction.
2. Meat is easier to digest as compared to grass. Give reason.
3. Why is it essential to match the blood groups of donors and receiver person before arranging transfusion of blood?
4. If you compare your rate of breathing by feeling your chest movement with the number of times a fish opens and closes its mouth. Which will be higher and why?

**VI. SHORT ANSWER TYPE QUESTIONS [3 MARKS EACH]**

---

**DIFFICULT LEVEL**

1. How is haemoglobin associated with respiration explained?
2. What are the modes of excretion in plants?
3. Give an experiment to prove the essentiality of light for photosynthesis.
4. How is transpiration pull responsible for upward movement of water?
5. How are lungs designed in human beings to maximize the area of exchange of gases ?
6. Why and how does water enter continuously into the root xylem of plants?

**VII. LONG ANSWER TYPE QUESTIONS [5 MARKS EACH]**

---

**DIFFICULT LEVEL**

1. What is 'clotting of blood'? Write a flow chart showing major events taking place in clotting of blood?
2. With the help of labeled diagram, Discuss the mechanism of respiration in human beings.
3. Describe an experiment to prove that carbon – dioxide is essential for the process of photosynthesis.