Chapter- 6

LIFE PROCESSES

SUB TOPIC: LIVING, NONLIVING, MOLECULAR MOVEMENTS NEEDED FOR LIFE, SINGLE-CELLED ORGANISM, MULTI-CELLED ORGANISM, BASIC RULES FOR BODY DESIGN IN MULTI-CELLULAR ORGANISMS.

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. List out the building blocks of life?
2. Why are proteins necessary for the living organisms?
3. which of the cell organelles is essential to synthesize food by the autotrophs?
4. Which of the following type of energy is used by living organisms to perform vital life processes? Kinetic energy, Chemical energy, Potential energy, nuclear energy
5. Name Four non-living things which were once living
6. What are the organisms which are composed of many cells packed together called?
7. Name one example of prokaryotic cell.
8. Amoeba and Paramecium belong to which category of organisms?
9. What is the name of living substance present in cell?
10. What is the name of cell which has a well-defined nucleus?
11. Life process involves:
    (a) Continuous process of maintaining functions of living organism.
    (b) All the activities being performed during life cycle of an organism.
    (c) Generation of energy for the purpose of metabolism.
    (d) Differs from individual to individual.
12. Which statement is not correct for single celled organism?
    (a) no specific organs for taking in food needed.
    (b) exchange of gases or removal of wastes may be needed.
    (c) single cell organisms are the newest form of life.
    (d) entire surface of the organism is in contact with the environment.

SHORT ANSWER TYPE QUESTIONS [2 Marks]

13. What are the different defining properties of a living organism?
14. What do you mean by unicellular and multicellular organisms?
15. Which is the basic requirement of living organisms for obtaining energy?
16. Name two inorganic substances which are used by autotrophs to make food
17. Which organism is more efficient in its functioning—unicellular or multicellular? Why?
18. What is the difference between the genetic material of prokaryotes and eukaryotes?

SHORT ANSWER TYPE QUESTIONS [3 Marks]

19. Define the following terms- Metabolism, Growth and Development.
20. a) How do plants obtain food?
    b) Why do plants need nitrogen? How do plants obtain nitrogen?
21. On what basis are plants and animals put into different categories?
22. What is meant by life processes? Name the basic life processes common to all living organisms which are essential for maintaining life.

LONG ANSWER TYPE QUESTIONS [5 Marks]

23. a) How are metabolic processes regulated in the body?
    b) What is the difference between metabolism of autotrophs and heterotrophs?
    c) Which organism are called primitive and how are they different from the so-called advanced organisms?

CASE STUDY

24. The organisms A, B and C can obtain their food in three different ways. Organism A derives its food from the body of another living organism which is called its D, without killing it. The organism B takes in the solid food by the process of ingestion, digests a part of this food and throws out undigested food in the process called E. The organism C obtains its food from dead and decaying plants.
    a) What is the mode of nutrition of (i) organism A (ii) organism B, and (iii) organism C?
    b) What is the organism like D called?
    c) Name the process E.
    d) Give one example each of organisms like (i) A (ii) B, and (iii) C.
    e) What is the general name of three modes of nutrition exhibited by organisms A, B and C?
25. An organism A which cannot move from one place to another, makes a simple food B from the substances C and D available in the environment. This food is made in the presence of a green coloured substance E present in organs F in the presence of light energy in a process called G. Some of the simple food B also gets converted into a complex food H for storage purposes. The food H gives a blue-black colour with dilute iodine solution.
    a) What is (i) organism A (ii) food B, and (iii) food H?
    b) What are C and D?
    c) Name (i) green coloured substance E, and (ii) organ F.
    d) What is the process G?

Sub Topic: NUTRITION, TYPES OF NUTRITION, METABOLISM, AUTOTROPHIC NUTRITION, PHOTOSYNTHESIS, HETEROTROPHIC NUTRITION, HOLOZOIC NUTRITION, NUTRITION IN AMOEBA

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. Write the forms in which carbon dioxide enters the body of terrestrial and aquatic plants.
2. Which substance is used to remove chlorophyll from a green leaf during photosynthesis experiments?
3. Why do plants need nitrogen? How do plants obtain nitrogen?
4. From which part of the body, undigested food is egested in Amoeba? Name a unicellular animal which uses cilia to move food particles into its mouth.
5. Why do we boil the leaf in alcohol when we are testing it for starch?
6. What is the mode of nutrition in fungi?
7. Name one organism each having saprophytic, parasitic and holozoic modes of nutrition.
8. Apart from sunlight and chlorophyll, what other things are required to make food by photosynthesis?
9. a) Name a gas used in photosynthesis.
    b) Name a gas produced in photosynthesis

10. Process of conversion of light energy to chemical energy and splitting of water molecules into hydrogen and oxygen in plants is known as
    (a) Photosynthesis (b) Photoperiodism
    (c) Plant nutrition (d) Plant hormone functions
11. Which plants take up carbon dioxide at night and prepare an intermediate?
    (a) Desert plants (b) Bamboo (c) Coattails (d) Palm tree
12. The green organelle on surface of leaves containing chlorophyll are known as
    (a) Xylem (b) Epidermis (c) Chloroplasts (d) Vascular bundle

SHORT ANSWER TYPE QUESTIONS [2 Marks]

13. In addition to carbon dioxide and water, state two other conditions necessary for the process of photosynthesis to take place.
14. a) Name the pigment in leaves which absorbs sunlight energy.
    b) What is the colour of this pigment?
15. What is the name of those cells in the leaf of a plant which control the opening and closing of stomata?
16. All the animals can be divided into three groups on the basis of their eating habits. Name the three groups.
17. Why do we boil the leaf in alcohol when we are testing it for starch?
18. Arrange the following processes involved in the nutrition in animals in the correct order (in which they take place):
    Assimilation, Egestion, Ingestion, Absorption, Digestion

SHORT ANSWER TYPE QUESTIONS [3 Marks]

19. State the various steps involved in the process of photosynthesis
20. Define (i) saprophytic nutrition (ii) parasitic nutrition, and (iii) holozoic nutrition. Give one example of each type.
21. a) How does carbon dioxide from the air enter the leaves of a plant to be used in photosynthesis?
    b) How does water from the soil reach the leaves of a plant to be used in photosynthesis?
22. a) What are heterotrophs? Give one example of heterotrophs.
    b) What is the difference between autotrophic nutrition and heterotrophic nutrition?

LONG ANSWER TYPE QUESTIONS [5 Marks]

23. a) Leaves of a healthy potted plant were coated with Vaseline. Will this plant remain healthy for long? Give reason for your answer.
    b) What will happen to the rate of photosynthesis in a plant under the following circumstances?
        1. cloudy day in morning but bright sunshine in the afternoon
        2. no rainfall in the area for a considerable time.
        3. gathering of dust on the leaves
24. What are the factors that affect the rate of photosynthesis?
25. a) What is photosynthesis?
    b) Write a chemical equation to show the process of photosynthesis in plants.
    c) Explain the mechanism of photosynthesis.

26. a) Name the raw materials required for photosynthesis. How do plants obtain these raw materials?
    b) What are the various conditions necessary for photosynthesis?
    c) Name the various factors which affect the rate of photosynthesis in plants.
27. a) Describe the process of nutrition in Draw labelled diagrams to show the various steps in the nutrition in Amoeba.
    b) What is the mode of nutrition in Amoeba known as?
    c) What is the process of obtaining food by Amoeba called? What does it mean?
28. If a plant is releasing carbon dioxide and taking in oxygen during the day, does it mean that there is no photosynthesis occurring? Justify your answer.

CASE STUDY

29. A unicellular animal P having no fixed shape ingests a food particle by forming temporary finger-like projections Q. The food particle is engulfed with a little surrounding water to form a temporary stomach R inside it. The chemicals S from surrounding cytoplasm enter into R and break down food into small and soluble molecules by chemical reactions. The digested food is absorbed directly into cytoplasm by the process T. The undigested food is thrown out of the body by the rupture of a cell organelle U in a process called V.
    a) Name the unicellular animal P.
    b) What are (i) Q, and (ii) R?
    Human Digestive System, Alimentary Canal, Associated Digestive Glands, Digestion of various food components along various parts of Alimentary canal
    c) Name (i) chemical S, and (ii) process T.
    d) Name (i) organelle U, and (ii) process V.

Sub Topic: HUMAN DIGESTIVE SYSTEM, ALIMENTARY CANAL, ASSOCIATED DIGESTIVE GLANDS, DIGESTION OF VARIOUS FOOD COMPONENTS ALONG VARIOUS PARTS OF ALIMENTARY CANAL

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. Name the enzyme presents in human saliva. What type of food material is digested by this enzyme?
2. Which of the organs perform the following functions in humans?
    i) Absorption of food
    ii) Absorption of water
3. What substance is mixed with food in the mouth during chewing by the teeth?
4. What moves the food in the digestive organs?
5. What is the name of tiny projections on the inner surface of small intestine which help in bsorbing the digested food?
6. Name the biological catalysts which bring about chemical digestion of food.
7. The enzyme that breaksdown starch into simpler form is known as
    (a) Salivary amylase (b) Lipase
    (c) Maltase (d) Trypsin
8. Which body organ is responsible for the complete digestion of carbohydrates, fats and protein?
    (a) Stomach (b) Largeintestine (c) Liver (d) Smallintestine

SHORT ANSWER TYPE QUESTIONS [2 Marks]

9. What is meant by dental caries? How are they caused?
10. What is dental plaque? What harm can it do? How can the formation of plaque be prevented?
11. a) What is the role of hydrochloric acid in our stomach?
    b) What is the function of enzymes in the human digestive system?
12. a) Which part of the body secretes bile? Where is bile stored? What is the function of bile?
    b) What is trypsin? What is its function?
13. What are the functions of liver and pancreas in the human digestive system?
14. Name the biological catalysts which bring about chemical digestion of food.

SHORT ANSWER TYPE QUESTIONS [3 Marks]

15. a) Why is small intestine in herbivores longer than in carnivores?
    b) What will happen if mucus is not secreted by the gastric glands?
    c) What causes movement of food inside the alimentary canal?
16. Explain the statement bile does not contain any enzyme but it is essential for digestion.
17. What substances are contained in gastric juice? What are their functions?
18. a) What is the role of HCl in our stomach?
    b) What is emulsification of fats?
    c) Which protein digesting enzyme is present in pancreatic juice?

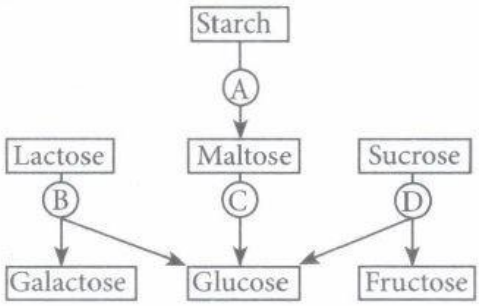
LONG ANSWER TYPE QUESTIONS [5 Marks]

19. Draw a neat diagram of alimentary canal and label the following parts.
    a) The largest gland.
    b) The gland that secretes digestive enzymes as well as hormones.
    c) The part where digested food is absorbed.

CASE STUDY

20. The small intestine is a tubular structure within the abdominal cavity that carries the food in continuation with the stomach up to the colon from where the large intestine carries it to the rectum and out of the body. The main function of this organ is to aid in digestion. All nutrients are usually absorbed into blood across the mucosa of the small intestine. In addition, the small intestine absorbs water and electrolytes, thus playing critical role in maintenance of body water and acid-base balance.
    i) Which of the following is incorrect regarding intestinal villi?
        a) They possess microvilli.
        b) They increase the surface area.
        c) They are supplied with capillaries and the lacteal vessels.
        d) They only participate in digestion of fats
    ii) Which enzymes are likely to act on the baked potatoes eaten by a man, starting from the mouth as they move down the alimentary canal?
        a) Pancreatic amylase →→ Salivary amylase →→ Lipases
        b) Disaccharidase like maltase →→ Lipases →→ Nucleases
        c) Salivary amylase →→ Pancreatic amylase →→ Disaccharidases
        d) Salivary maltase →→ Carboxypeptidase →→ Trypsinogen
    iii) After surgical removal of an infected gall bladder, a person must be especially careful to restrict dietary intake of
        (a) starch (b) protein (c) sugar (d) fat.

iv) The given flow chart shows the fate of carbohydrates during digestion in the human alimentary canal. Identify the enzymes acting at stages indicated as A, B, C and D and select the correct option.



(a) A - Amylase, B - Maltase, C - Lactase, D - Invertase
(b) A - Amylase, B - Maltase, C - Invertase, D - Lactase
(c) A - Amylase, B - Invertase, C - Maltase, D - Lactase
(d) A - Amylase, B - Lactase, C - Maltase, D - Invertase

v) The given diagram represents a section of small intestinal mucosa. Identify A, Band C.
(a) A-Villi, B-Lacteal, C-Capillaries (b) A-Lacteal, B-Villi, C-Capillaries
(c) A-Villi, B-Lacteal, C-Crypts (d) A-Crypts, B-Lacteal, C-Capillaries

21. Usman collected her saliva and mixed it with liquidA in the test tube. In another test tube she took onlyliquid A after about 10 minutes, she added a few drops of iodine solution to the mixture in the first testtube. It did not show any colour but when she treated the other test tube with iodine, a blue black colourappeared.Now answerthe followingquestions:
i) What is the aim of this activity?
ii) What is liquid A?
iii) Why did the first test tube not show any colour change with iodine while these condonedid?
iv) Which enzyme is responsible for such a result?
v) Why does a piece of bread chewed for a longtime tastes sweet?

Sub Topic: RESPIRATION, AEROBIC & ANAEROBIC RESPIRATION, BREAKDOWN OF GLUCOSE BY VARIOUS PATHWAYS, FORMATION OF ATP

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. Do all cells use oxygen to produce energy?
2. Name one substance which is produced in anaerobic respiration by an organism but not in aerobic respiration.
3. Name one organism which can live without oxygen.
4. In which type of respiration, aerobic or anaerobic, more energy is released?
5. Name the substance whose build up in the muscles during vigorous physical exercise may cause cramps.

SHORT ANSWER TYPE QUESTIONS [2 Marks]

6. Explain why, a land plant may die if its roots remain waterlogged for a long time.
7. Name the final product/products obtained in the anaerobic? respiration, if it takes place:
   a) in a plant (like yeast).
   b) in an animal tissue (like muscles).
8. What type of respiration takes place in human muscles during vigorous physical exercise ? Give reason for your answer.

9. Name the process by which plant parts like roots, stems, and leaves get oxygen required for respiration.
10. Name the pores in a leaf through which respiratory exchange of gases takes place.

SHORT ANSWER TYPE QUESTIONS [3 Marks]

11. What are the differences between aerobic and anaerobic respiration? Name some organisms that use anaerobic mode of respiration.
12. Name the type of respiration in which the end products are:
    a) C_2H_5OH and CO_2
    b) CO_2 and H_2O
    c) Lactic acid
13. Give one example of each case where such a respiration can occur.
14. Define breathing. State the differences between breathing and respiration.
15. Explain why, when air is taken in and let out during breathing, the lungs always contain a residual volume of air.
16. Explain why, it is dangerous to inhale air containing carbon monoxide.

LONG ANSWER TYPE QUESTIONS [5 Marks]

17. Draw a neat labelled diagram of the human respiratory system. Give the functions of each part.

CASE STUDY

18. During the respiration of an organism A, 1 molecule of glucose produces 2 ATP molecules whereas in the respiration of another organism B, 1 molecule of glucose produces 38 ATP molecules.
    a) Which organism is undergoing aerobic respiration?
    b) Which organism is undergoing anaerobic respiration?
    c) Which type of organism, A or B, can convert glucose into alcohol?
    d) Name one organism which behaves like A.
    e) Name two organisms which behave like B.
19. A, B and C are three living organisms. The organism A is a unicellular fungus which can live without air. It is used in the commercial production of an organic compound P from molasses. The organism B is a unicellular animal which lives in water and feeds and moves by using pseudopodia. It breathes through an organelle Q. The organism C is a tiny animal which acts as a carrier of malarial parasite. It breathes and respires through a kind of tiny holes R and air-tubes S in its body.
    a) What are organisms (i) A (ii) B, and (iii) C?
    b) Name (i) P (ii) Q (iii) R, and (iv) S.
    c) Which organism/organisms undergo aerobic respiration?
    d) Which organism/organisms undergo anaerobic respiration?

Sub Topic: MECHANISM OF RESPIRATION IN HUMAN BEINGS, MECHANISM OF RESPIRATION IN AQUATIC AND TERRESTRIAL ORGANISM, BREATHING IN PLANTS.

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. What would be the consequences of deficiency of hemoglobin in our bodies?
2. Name the final product/products obtained in the anaerobic respiration, if it takes place:
3. which part of the respiration is common in all living organisms.

SHORT ANSWER TYPE QUESTIONS [2 Marks]

4. Describe the process of respiration in Amoeba. State whether it is anaerobic respiration or aerobic respiration.
5. State the three common features of all the respiratory organs like skin, gills and lungs.
6. Describe the process of respiration in fish.
7. Explain why, plants have low energy needs as compared to animals.

SHORT ANSWER TYPE QUESTIONS [3 Marks]

8. Describe the process of respiration in the following parts of a plant:
   a) Root
   b) Stem
   c) Leaves
9. a) What is meant by aquatic animals and terrestrial animals?
   b) From where do the aquatic animals and terrestrial animals obtain oxygen for breathing and respiration?
10. a) What is the function of the respiratory system?
    b) What are the major organs of respiratory system in man (or humans)?
    c) Draw a labelled diagram of the human respiratory system
11. How are lungs designed in human beings to maximise the exchange of gases?
12. List three characteristics of lungs which make it an efficient respiratory surface.
13. State the three common features of all the respiratory organs like skin, gills and lungs.

LONG ANSWER TYPE QUESTIONS [5 Marks]

14. a) Explain how, the air we breathe in gets cleaned while passing through the nasal passage.
    b) Why do the walls of trachea not collapse when there is less air in it?
    c) How are oxygen and carbon dioxide exchanged in our body during respiration?

CASE STUDY

15. When a person breathes in air, the air enters into his body through an organ A having two holes B in it. The air then passes thro pharynx and larynx and enters into a tube C. The tube C divides into two smaller tubes D at its lower end. The two smaller tubes are attached to two respiratory organs E. Each smaller tube divides inside the organs E to form a large number of still smaller tubes called F. The smallest tubes F have air-sacs G at their ends in which gaseous exchange takes place in the body of the person.
    What are A, B, C, D, E, F and G?

Sub Topic: TRANSPORTATION IN HUMAN BEING, CIRCULATORY SYSTEM, COMPONENTS OF TRANSPORT SYSTEM IN HUMAN BEINGS, BLOOD VESSELS, FUNCTIONS OF THE VARIOUS BLOOD COMPONENTS, BLOOD PRESSURE

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. What stops blood from flowing backwards through the heart?
2. Name (i) largest artery, and (ii) largest vein, in our body.
3. From the following terms, choose one term which includes the other four:
   Plasma, Platelets, Blood, RBC, WBC

4. Why is the blood plasma a straw-coloured fluid?
5. Name the extracellular fluid present in human beings.

SHORT ANSWER TYPE QUESTIONS [2 Marks]

6. List any five substances transported by the blood.
7. Give the functions of white blood cells
8. What stops blood from flowing backwards through the heart?
9. What would happen if the platelet count decreases drastically in the blood.
10. Why are red blood cells unable to carry out metabolic activity.

SHORT ANSWER TYPE QUESTIONS [3 Marks]

11. Why do capillaries have very thin walls?
12. List the three kinds of blood vessels of human circulatory system and write their functions in tabular form.
13. Why is the circulation of blood in fishes called single circulation?
14. Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?

LONG ANSWER TYPE QUESTIONS [5 Marks]

15. What happens if conducting tubes of circulatory system develops a leak? State in brief, how could this be avoided?
16. Draw a diagram of the front view of human heart and label any six parts including at least two, that are concerned with arterial blood supply to the heart muscles.
17. What are the components of transport system in human beings? What are the functions of these components?

Sub Topic: HUMAN HEART, DOUBLE CIRCULATION

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. How is heart protected from shocks and jerks?
2. Why does the blood taste salty?
3. What is double circulation?
4. Why can red blood cells not perform metabolism?
5. Why are arteries thick-walled?

SHORT ANSWER TYPE QUESTIONS [2 Marks]

6. With the help of diagram, show pulmonary circulation in man.
7. What are the components of the transport system in human beings? What are the functions of these components?
8. Name one animal having single circulation of blood and another having double circulation.
9. Name the two types of transport systems in the human beings.
10. a) How many types of blood vessels are there in the human body? Name them.
    b) Why does the heart need valves?

SHORT ANSWER TYPE QUESTIONS [3 Marks]

11. Draw a sectional view of the heart and label on it:
    aorta, right ventricle, pulmonary vein

12. State the differences between artery, vein and capillary.
13. a) What are the upper parts of the heart called?
    b) What are the lower parts of the heart called?
    c) What is the name of blood vessels which connect arteries to veins?
    d) (i) Which side of the heart pumps blood into the lungs?
    ii) Which side of the heart pumps blood into entire body (except the lungs)?
14. a) What is meant by heart beat? What is the usual heart beat rate at rest?
    b) What change occurs in heart beats if a person runs for a while? Why?
15. Explain the structure and function of platelets

LONG ANSWER TYPE QUESTIONS [5 Marks]

16. a) Draw sectional view of human heart and label
    1. Pulmonary artery
    2. Aorta
    3. Septum
    4. Ventricles.
    b) Arteries have thick walls while veins have valves. Explain.
    c) Why are valves needed in the heart?

CASE STUDY

17. The human body has an organ A which acts as a double pump. The oxygenated blood coming from the lungs through a blood vessel B enters the upper left chamber C of the double pump. When chamber C contracts, then blood goes into lower left chamber D. The contraction of chamber D forces the blood to go into a blood vessel E which supplies oxygenated blood to all the organs of the body (except the lungs). The deoxygenated blood coming out of the body organs is taken by a blood vessel F to the right upper chamber G of pumping organ. Contraction of chamber G forces the deoxygenated blood into right lower chamber H. And finally the contraction of chamber H sends the deoxygenated blood into lungs through a blood vessel I.
    a) What is organ A?
    b) Name the blood vessel (i) B (ii) E (iii) F, and (iv) I.
    c) What are chambers (i) C, and (ii) D?
    d) What are chambers (i) G and (ii)

Sub Topic: LYMPH, MAINTENANCE BY PLATELETS, COMPOSITION OF LYMPH

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. What are the functions of lymph in our body?
2. How is plasma different from blood and serum?
3. Where do the lymph vessels ultimately open?

SHORT ANSWER TYPE QUESTIONS [2 Marks]

4. What do you mean by 'lymph'. Mention its function.
5. How does tissue fluid differ from plasma?

SHORT ANSWER TYPE QUESTIONS [3 Marks]

6. What is the difference between the composition of tissue fluid and blood plasma?

LONG ANSWER TYPE QUESTIONS [3 Marks]

7. What is lymph? How is the composition lymph different from blood plasma? What is the direction of its flow? List two functions of the lymphatic system.

CASE STUDY

8. A liquid X of colour Y circulates in the human body only in one direction : from body tissues to the heart. Among other things, liquid X contains germs from cells and dead cells. The liquid X is cleaned of germs and dead cells by a special type of white blood cells called Z. This cleaned liquid is then put into blood circulatory system in subclavian veins.
   a) What is (i) liquid X, and (ii) colour Y?
   b) What are Z?
   c) The liquid X is somewhat similar to a component of blood. Name this component.
   d) Why is liquid X not red?
9. The liquid connective tissue A circulates in our body continuously without stopping. This tissue contains a pigment B which imparts it a colour C. The tissue A consists of four components D, E, F and G. The component D fights infection and protects us from diseases. The component E helps in the clotting of tissue A if a person gets a cut. The component F is a liquid which consists mainly of water with many substances dissolved in it and component G carries oxygen from the lungs to all the parts of the body.
   a) What is (i) tissue A (ii) pigment B, and (iii) colour C?
   b) Name (i) D (ii) E (iii) F, and (iv) G.
   c) Name one substance (other than oxygen) which is transported by tissue A in the human body.
   d) Which two components of tissue A are the cells without nucleus?
   e) Name any two organisms (animals) which do not have liquid like A in their body.
10. Lymphatic system consists of lymph, lymph capillaries, lymph vessels, lymph nodes. Fluid diffusesthrough the very thin walls of the capillaries into the tissue spaces. It contains minerals, nutrients and fewer proteins and nourishes the tissues. This tissue fluid is called lymph. The lymphatic system helps to transport this tissue fluid back into the main blood stream, from intercellular spaces, lymph goes into lymphatic capillaries. Lymphatic capillaries join to form large lymph vessels that drain into collecting ducts. These empty the lymph into the two subclavian veins, located below the collar bones. These veins join to form the superior vena cava. Lymph flows only in direction that is from tissues to heart through veins.
   i) Identify the correct feature of lymph?
      (a) It is similar to the plasma of blood, but is colourless and contains fewer proteins.
      (b) It is similar to the WBCs of blood, but is colourless and contains more proteins.
      (c) It is similar to the RBCs of blood and red in colour.
      (d) It contains more fats.
   ii) Lymph flows in
      (a) intercellular spaces (b) extracellular space
      (c) in arteries (d) in veins
   iii) The important function of lymph is
      (a) return RBCs to lymph nodes (b) return interstitial fluid to blood
      (c) carry oxygen (d) carry waste and undigested food

iv) Which of the following is not a main function of lymph glands
(a) forming RBCs (b) forming WBCs
(c) forming antibodies (d) destroying bacteria

SUB TOPIC: TRANSPORTATION IN PLANTS, COMPONENTS OF TRANSPORT SYSTEM IN A HIGHLY ORGANIZED PLANTS, TRANSPORT OF WATER, TRANSPORT OF FOOD AND OTHER SUBSTANCES

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. What is "translocation"? Why it is essential for plants.
2. How does food pass in the phloem.
3. What forms the continuous water conducting channels in the plants?
4. Why does water diffuse into the root hair passively?

SHORT ANSWER TYPE QUESTIONS [2 Marks]

5. Explain the factors responsible for the ascent of sap in plants.
6. What do you understand by the force of adhesion and cohesion in the ascent of sap?
7. What is translocation in plants?

SHORT ANSWER TYPE QUESTIONS [3 Marks]

8. How is transpiration pull responsible for upward movement of water?
9. Explain the structure of conducting tissues in plants.
10. Write about the means of transportation in plants
11. Explain the phenomenon of transpiration pull in the plants.
12. How can you demonstrate that xylem conducts water in the plants?
13. If a plant is kept covered with a polythene sheet, we notice some water drops on the inner side of the sheet after some time. What are they due to? Name and define the process. What is the significance of this process in plants and in nature? How does transpiration help in upward movement of water from roots to leaves?

LONG ANSWER TYPE QUESTIONS [5 Marks]

14. Why and how does water enter continuously into the root xylem of plants?
15. How are water and minerals absorbed and transported in the plants?

CASE STUDY

16. The transport system in plants consists of two kinds of tissues X and Y. The tissue X is made up of living cells and consists of two components A and B. The component A has tiny pores in its end walls and contains only cytoplasm but no nucleus. On the other hand, component B has cytoplasm as well as nucleus. The tissue Y is made up of dead cells and consists of two components C and D. The component C has open ends whereas component D does not have open ends. In flowering plants, either only C or both C and D transport water but D is the only water conducting tissue in non-flowering plants.
    a) What is (i) tissue X (ii) component A, and (iii) component B?
    b) What is (i) tissue Y (ii) component C, and (iii) component D?

SUB TOPIC: EXCRETION, EXCRETION IN HUMAN BEINGS, EXCRETORY SYSTEM, STRUCTURE; FUNCTION OF NEPHRON

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. How is excretion different from egestion?
2. Why should ammonia be excreted as soon as it is formed?
3. Name two organisms which excrete urea.
4. How do most of the unicellular organisms excrete?

SHORT ANSWER TYPE QUESTIONS [2 Marks]

5. What are the modes of excretion in plants?
6. Why Is the right kidney of human beings a little lower than the left kidney?
7. What is the function of sphincter located at the end of urethra?
8. Why is a nephron is called the structural and functional unit of kidney?

SHORT ANSWER TYPE QUESTIONS [3 Marks]

9. a) Name the various organs of the human excretory system.
   b) Draw a neat labelled diagram of the human excretory system.
   c) What is the function of excretory system in humans?
10. a) Describe the mechanism of urine formation in human excretory system. Draw a labelled diagram to illustrate your answer.
    b) Where is urine carried through ureters?
    c) What is urethra?

LONG ANSWER TYPE QUESTIONS [5 Marks]

11. a) Draw human excretory system and label
    1. Left kidney
    2. Ureter
    3. Urinary bladder
    4. Urethra.
    b) What is the main toxic waste kidney filters from blood?
    c) Name any two substances which are selectively reabsorbed from the tubules of a nephron.
12. a) What are two vital functions of the human kidney?
    b) Draw labelled diagram of human urinary system.

CASE STUDTY

13. There is a pair of bean-shaped organs P in the human body towards the back, just above the waist. A waste product Q formed by the decomposition of unused proteins in the liver is brought into organ P through blood by an artery R. The numerous tiny filters S present in organ P clean the dirty blood by removing the waste product Q. The clean blood goes into circulation through a vein T. The waste substance Q, other waste salts, and excess water form a yellowish liquid U which goes from organ P into a bag-like structure V through two tubes W. This liquid is then thrown out of the body through a tube X.
    a) What is (i) organ P, and (ii) waste substance Q?
    b) Name (i) artery R, and (ii) vein T.
    c) What are tiny filters S known as?
    d) Name (i) liquid U (ii) structure V (iii) tubes W, and (iv) tube X.

Sub Topic: MECHANISM OF URINE FORMATION, ARTIFICIAL KIDNEY (HEMODIALYSIS)

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. Name the constituent present in glomerular filtrate.
2. From where do the ureters arise?
3. Name an anticoagulant used in dialysis.
4. Why do the excretory products pass from the blood to the dialyzing fluid?
5. Name any two waste products produced by plants.
6. Why is heparin added to the blood during hemodialysis?
7. What is the importance of excretion in the living organisms?
8. How can a human being survive with a damaged kidney?

SHORT ANSWER TYPE QUESTIONS [3 Marks]

9. a) What is meant by dialysis? What type of patients are put on dialysis?
   b) Explain the principle of dialysis with the help of a labelled diagram.
10. Differentiate between ammoniotelic and uricotelic organisms.
11. Why are mammals ureotelic while birds uricotelic?

LONG ANSWER TYPE QUESTIONS [5 Marks]

12. What is the composition of urine? Are glucose and proteins normally present in urine? Why? How is volume of urine regulated?
13. a) Define excretion.
    b) Name the basic filtration unit present in the kidney.
    c) Draw excretory system in human beings and label the following organs of excretory system which perform following functions:
    (i) form urine
    (ii) is a long tube which collects urine from kidney.
    (iii) store urine until it is passed out.

CASE STUDY

14. Monika's mother had severe kidney infections. Her doctor told her to go for dialysis once in a week, till her infection is cured, which is essential for her survival. When she came to know about the procedure, she was not ready for it. Monika urged her mother to agree to dialysis explaining how precious her life was. Her mother agreed and now goes to the hospital every week for dialysis.
    Answer the following questions based on the above information-
    i) What is dialysis? Why was it essential for Monika's mother?
    ii) In your opinion, why was Monika's mother not ready for dialysis?

Sub Topic: EXCRETION IN PLANTS

VERY SHORT ANSWER TYPE QUESTIONS [1 Mark]

1. What is the chief organ of excretion in plants?
2. Which are the different substances excreted by plants? Why?

SHORT ANSWER TYPE QUESTIONS [2 Marks]

3. What are the methods used by plants to get rid of excretory products?
4. Name the waste products stored in the old xylem of many plants.
5. Name any two waste products produced by the plants.

SHORT ANSWER TYPE QUESTIONS [3 Marks]

6. How does shedding of leaves help the plants in excretion?
7. Write a short note on the waste products in plants.

LONG ANSWER TYPE QUESTIONS [5 Marks]

8. What are the strategies employed by plants for removal of their waste?
9. Explain the process of excretion in plants.

ASSERTION AND REASONING QUESTIONS

Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

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

10. Assertion (A): Plants lack excretory organs.
    Reason (R): Plants usually absorb essential nutrients.
11. Assertion (A): In anaerobic respiration, one of the end products is alcohol.
    Reason (R): There is an incomplete breakdown of glucose.
12. Assertion (A): In plants there is no need of specialised respiratory organs.
    Reason (R): Plants do not have great demands of gaseous exchange.
13. Assertion (A): Bile is essential for digestion of lipids.
    Reason (R): Bile juice contains enzymes.
14. Assertion (A): Carbohydrate digestion mainly takes place in small intestine.
    Reason (R): Pancreatic juice contains the enzyme lactase.
15. Assertion (A): Aerobic respiration requires less energy as compared to anaerobic respiration.
    Reason (R): Mitochondria is the powerhouse of the cell.
16. Assertion (A): Arteries are thick-walled and elastic in nature.
    Reason (R): Arteries have to transport blood away from the heart.
17. Assertion (A): Human heart is four-chambered.
    Reason (R): Vena cava is the only artery that supplies deoxygenated blood to the heart.
18. Assertion (A): Energy is required to carry out different life processes.
    Reason (R): Energy is obtained in the form of ATP in the mitochondria.
19. Assertion (A): Rings of cartilage are present in the throat,
    Reason (R): These ensure that the air-passage does not collapse
20. Assertion (A): Pyruvate is a six-carbon molecule
    Reason (R): It is prepared in the cytoplasm as the first step to cellular respiration
21. Assertion (A): Molecular movements are needed for life.
    Reason (R): Body structures made up of these molecules need continuous repair and maintenance
22. Assertion (A): Diffusion does not meet high energy requirements of multi-cellular organisms
    Reason (R): Diffusion is a fast process but occurs at the surface of the body.
23. Assertion (A): The opening and closing of the pore is a function of the guard cells.
    Reason (R): Stomatal pores are the site for exchange of gases by diffusion.

24. Assertion (A): The purpose of making urine is to filter out undigested food from intestine
Reason (R): Kidneys filter the waste and produce urine,
25. Assertion (A): The inner lining of the small intestine has numerous finger-like projections called villi.
Reason (R): The villi increase the surface area for absorption.
26. Assertion (A): In human beings, the respiratory pigment is haemoglobin
Reason (R): It is a type of protein which has high-affinity carbon dioxide.
27. Assertion: The plants store some of the waste products in their body parts.
Reason: Raphides are the solid waste products of plants.
28. Assertion: The movement of water and dissolved salts in xylem is always upwards.
Reason: 'The upward movement of water is due to low pressure created by transpiration.
29. Assertion: Photosynthesis takes place in green parts of the plants.
Reason: Photosynthesis always takes place in leaves.
30. Assertion: The average number of heart beat of a person at rest is about 80 per minute.
Reason: One contraction and relaxation of the heart constitutes a complete heartbeat.
31. Assertion: Ureters are the tubes which carry urine from kidneys to the bladder.
Reason: Urine is stored in the urethra.
32. Assertion: Ventricles have thicker walls than auricles.
Reason: Ventricles have to pump blood into various organs with great pressure
33. Assertion: Capillaries are the thinnest blood vessels.
Reason: Capillaries connect the branches of arteries and veins.
34. Assertion: Blood takes up oxygen from the alveolar air and release CO2 during exchange.
Reason: 'The concentration of O, is more in alveolar air.
35. Assertion: The large intestine is the largest part of the alimentary canal.
Reason: Tiger has a shorter small intestine, than herbivores.
36. Assertion: Most of the living organisms carry out aerobic respiration.
Reason: Mitochondria is the site of aerobic respiration in the cell.
37. Assertion: The Bowman's capsule and the tubule together make a nephron.
Reason: The function of tubule is to allow the selective reabsorption of substances like glucose, amino acids, urea, salts and water into the blood capillaries.
38. Assertion: Pancreatic juice digests starch, proteins and fats.
Reason: Pancreatic juice contains digestive enzymes like pancreatic amylase, trypsin and lipase.
39. Assertion: The accumulation of lactic acid in the muscles causes muscle cramps.
Reason: During vigorous physical exercise leg muscles respire anaerobically.
40. Assertion: Phloem helps in translocation of food from the leaves.
Reason: Phloem provides mechanical support to plant.
41. Assertion: Trachea does not collapse, when there is no air in it.
Reason: Trachea is supported by cartilage.
42. Assertion: Valves are present in the arteries
Reason: Arteries carry oxygenated blood from heart to different body parts except for the pulmonary artery.

CHAPTER HOTS

1. Plants Cannot move from one place to another, then why plants are Living things?
2. Why dothe plant leaves look green though they have pigments of various colours?
3. The leaves of a plant first prepare food A by photosynthesis. Food A then gets converted into food What are A and B?
4. How do submerged aquatic plants obtain co2 from the atmosphere for photosynthesis?
5. Which part of light spectrum is best for photosynthesis.
6. Photosynthesis converts energy X into energy Y. What are X and Y?
7. Two similar green plants are kept separately in oxygen free containers, one in dark and the other in continuous light. Which one will live longer? Give reasons.
8. Do all heterotrophs live on plants? Justify your answer.
9. Nametheproducts ofphotolysis ofwater.
10. What are the end products of light dependent reaction?
11. HCL is secreted in stomach to promote the activity of enzymes. Why does this HCL does not corrode the lining of the stomach?
12. When we chew a piece of bread for some time, we feel sweet taste in our mouth. Give reason.
13. What will happen if a person has more carbon dioxide in the body than the required amount?
14. Why are red blood cells anaerobes?
15. What is the difference between the end products of fermentation carried out by yeasts and by lactic acid bacteria.
16. The breathing cycle is rhythmic whereas exchange of gases is a continuous process". Justify this statement.
17. Explain why, it is dangerous to inhale air containing carbon monoxide.
18. What is the size and weight of the human heart?
19. What is the significance of longitudinal division of the human heart in to the left and right sides ?
20. What do you understand by the term haemocoel?
21. How does the blood circulate between heart and lungs in human beings?
22. What is a heartbeat.
23. What is meant by saying that the blood pressure of a person is 120/80?
24. What is hypertension? Why is it caused? What harm can it do?
25. What is meant by systolic pressure and diastolic pressure? What are their normal values?
26. What fluid is the origin of tissue fluid?
27. Why does the blood taste salty?
28. Why do plants have a slow transport system?
29. Why does translocation needs energy?
30. Why do many animals convert ammonia in to urea?
31. Name the main excretory product of aquatic animals.
32. The immediate treatment for cholera is to give glucose-saline drip or ORS. Explain with respect to the functioning of kidneys.
33. In case of chronic kidney failure, dialysis is the most effective treatment. How is it carried out? What purpose does it serve?
34. Define the following term with examples?
    a) Ammoniotelic organisms.
    b) Uricotelic organisms.
    c) Ureotelic organisms.
35. Which process in plants is responsible for clouds formation and precipitation? Define the process. How is this process important for the plants?

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