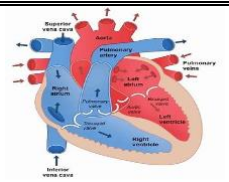
Life Processes



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Nutrition

1. **Define the term parasite. Name one plant parasite and one animal parasite some organism breakdown the food material outside the body and then absorb it. Give to examples.**

2. **(a) Name the process and explain the type of nutrition found in green plants. List the raw materials required for this process. Give chemical equation for the mentioned process.**
   (b) Write three events that occur during this process.

3. **What are the adaptations of a leaf for photosynthesis?**
4. **What criteria do we use to decide whether something is alive?**
5. **Plants look green in colour. State reason.**
6. **Why is diffusion insufficient to meet the oxygen requirement of multi cellular organism like human?**
7. **How to the guard cell regulate opening and closing of stomatal pore? Draw a well-labelled diagram to show open stomatal pore.**

8. **Give reason why?**
   a) **Herbivores have longer small intestine as compared to carnivorous.**
   b) **Mucus is secreted along with HCL in the stomach.**
   c) **Lungs always contain a residual volume off air.**

9. **Explain how are the facts digested in our bodies? Where does this process take place?**

10. **"Bile juice does not contain any enzyme that is essential for digestion''. Justify your answer**
11. **If a plant is releasing carbon dioxide and take in oxygen during the day, does it mean that there is no photosynthesis occurring? Justify your answer.**
12. **Enumerate meet the events that occur during the photosynthesis.**
13. **Explain the importance of soil for plant growth.**
14. **(a) State the form in which the following are stored :**
    (i) Unused carbohydrates in plants. (ii) Energy derived from food in humans.
    (b) Describe the process of nutrition in amoeba with the help of diagram.
15. **Leaves of a healthy potted plant were coated with vaseline. Will this plant remain healthy for long time? Give reasons.**
16. **Important part of digestion of food takes place in our stomach. Explain the role of gastric glands present in the wall of the stomach.**
17. **Which organ secretes a hormone when the blood sugar rises? Name a digestive enzyme released by this organ**
18. **Identify:**
    (a) The part from where acid is released.
    (b) Secretion of this helps in emulsification of fats.
    (c) Long tube like structure where peristalsis is the only process taking place.
    (d) A vestigial organ.
    (e) Accessory digestive heterocrine gland.
19. **How do carbohydrates, proteins and fats get digested in human beings?**
20. **In the context of the statement "chlorophyll necessary for photosynthesis" answer the following questions:**

(i) What are variegated leaves? Give an example. 2
(ii) When leaf is boiled in alcohol, what happens to the colour of the leaf and the colour of the solution?
(ii) In what form is the carbohydrate produced, stored in the plant? Why is chlorophyll necessary for photosynthesis?

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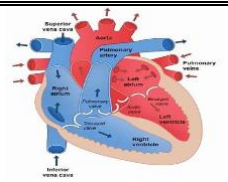


21. (a) Why is nutrition necessary for the human body?
    (b) What causes movement of food inside the alimentary canal?
    (c) Why is small intestine in herbivores longer than in carnivores?
    (d) What will happen if mucus is not secreted by the gastric glands?
22. State the form in which the following are stored :
    (i) Unused carbohydrates in plants. (ii) Energy derived from food in humans.
    (b) Describe the process of nutrition in amoeba with the help of diagram.
23. A variegated leaf with green and yellow patches is used for an experiment to prove that chlorophyll is required for photosynthesis. Before the experiment the green portions (A), and the pale yellow portions (B), are observed. What will be the colour of 'A' just before and after the starch test? Also write the equation of photosynthesis and mark, as well as validate from which molecule the by product is obtained.
24. Write one feature which is common to each of the following pairs:
    (a) Glycogen and starch (b) Chlorophyll and haemoglobin (c) Gills and lungs.
25. Name the following:
    (a) The process in plants that links light energy with chemical energy.
    (b) Organisms that can prepare their own food.
    (c) The cell organelle where photosynthesis occurs.
    (d) Cells that surround a stomatal pore.
    (e) Organisms that cannot prepare their own food.
    (f) An enzyme secreted from gastric glands in stomach that acts on proteins.
26. In each of the following situations, what happens to the rate of photosynthesis?
(a) Cloudy days (b) No rainfall in the area. (c) Good manuring in the area. (d) Stomata get blocked due to dust
27. Two green plants are kept separately in oxygen-free containers, one in the dark and other in sunlight. It was observed that plant kept in dark could not survive longer. Give reason for this observation. [2023
28. Although 'Pepsin' and 'Trypsin' are both protein digesting enzymes, yet they differ from each other. Justify this statement by giving one difference between them.
29. Which organisms have a three-chambered heart? Why do they have three-chambered hearts? 3
30. Give reasons-
(i) We use water bath for boiling leaf in alcohol.
(ii) We cover a portion of leaf with black paper strip
31. What are the differences between autotrophic nutrition and heterotrophic nutrition?
Give the name of the enzyme present in the fluid in our mouth cavity. State the gland which produces it. What would happen to the digestion process if this gland stops secreting this enzyme?
32. Write the function of the following in the human alimentary canal:
    (i) Saliva (ii) HCl in stomach (iii) Bile juice (iv) Villi
    (b) Write one function each of the following enzymes:
    (i) Pepsin (ii) Lipase (iii) Trypsin
33. Mention any two structural modifications in small intestine which helps in absorption.
Or, List two functions of finger like projections present in the small intestine
34. How does Paramecium obtain its food?
    (ii) List the role of each of the following in our digestive system:
    (a) Hydrochloric acid; (b) Trypsin (c) Muscular walls of stomach (d) Salivary amylase
35. A gas is released during photosynthesis. Name the gas and also state the way by which the gas is evolved.
36. Explain with the help of diagram, how amoeba takes its nutrition.
(b)What is the mode of nutrition in amoeba?
(c) Assume that you are a veterinary surgeon and you had removed a good length of the small intestine of a bear that was suffering from an intestinal tumor. Now, would you suggest a plant based or a meat based diet for the bear after its recovery? Give reason for your answer.
(d) Do you think plant based food should be preferred over non-vegetarian food?
37. Draw a diagram of human alimentary canal and label the following parts:

(i) largest gland.
(ii) gland that secretes digestive enzymes and hormone.
(iii) part where HCl is produced.
(iv) part where digested food is absorbed.
(v) part which stores bile until it's needed for digetion.

38. What are villi? Explain their function in the digestive system.Or
Give two reasons to explain why absorption of digested food occurs mainly in the small intestine

39. Various steps associated with iodine test are as follows:
(i) Boil the leaf in water.
(ii) Boil the leaf in alcohol on a water bath.
(iii) Wash the leaf in water.
(iv) Add few drops of iodine solution.
Mention the importance of steps given above.

40. While performing an experiment 'light is necessary for photosynthesis', the uncovered part of the leaf on treating with iodine solution turns blue-black while the covered portion remains yellow. Why

41. Human digestive system is a tube running from mouth to anus. Its main function is to break down complex molecules present in the food which cannot be absorbed as such into smaller molecules. These molecules are absorbed across the walls of the tube and the absorbed food reaches each and every cell of the body where it is utilised for obtaining energy.
(a) Name the glands present in the buccal cavity and write the components of food on which the secretion of these glands acts upon. 1
(b) Two organs have a sphincter muscle at their exit. Name them. 1
(c) What will happen if: (i) mucus is not secreted by the gastric glands. (ii) Villi are absent in the small intestine

Respiration

1. **How does exchange of gases take place in root of plants.**
2. **Define cellular respiration.**
3. **Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?**
4. **Name the form in which the energy derived from the food is stored in humans.**
5. **Write the correct sequence of steps followed during journey of oxygen rich blood from lungs to various organs of human body.**
   What happens when the system of blood vessels develop a leak?
6. **Name the following: The three carbon molecule that is formed due to breakdown of glucose during respiration.**
7. **What is difference between breathing and respiration?**
8. **Write other names of the following: (i) Alveolar sac (ii) Voice box**
9. **What would happen if:**
(i) KOH solution is not hung in conical flask during experiment.
(ii) seeds are not kept moist during experiment.
10. **Transport of food in plants require living tissues and energy. Justify the statement.**
11. **Write two different ways in which glucose is oxidized to provide energy in human body. Write the products formed in each case.**
12. **In the experimental set up to show that "CO_2, is given out during respiration", name the substance taken in the small test tube kept in the conical flask. State its function and the consequences of its use.**
13. **Why are germinating seeds taken in the experiment? What would happen if germinating seeds are replaced by bolled seeds?**

14. **In the experimental set-up to show that "the germinating seeds give out carbon dioxide." Answer the following questions:**
    - **(i) Why do we keep the conical flask airtight?**
    - **(ii) Name the substance kept in the small test tube inside the conical flask. Write its role.**
    - **(iii) Why does water rise in the delivery tube?**
15. **During respiration pyruvic acid is produced as end-product of glycolysis. State the end-product formed from it on further breakdown in each of the following cases:**
    (a) Yeast in absence of oxygen. (b) Lack of oxygen in muscles. (c) Presence of oxygen in mitochondria.
16. **How are the lungs designed in human beings to maximise the area for exchange of gases**
17. **What advantages over an aquatic organion does a terrestrial organism have with regard to obtaining oxygen for respiration**
18. **How is oxygen and carbon transported in human beings?**
19. **Define the pathway of respiratory system.**
20. **Give reason:**
    - **a) Fine hair and mucus present in nasal passage.**
    - **b) The diaphragm flattens and ribs are lifted up when we breathe in.**
    - **c) Rings of cartilage are present in the throat do that**
    - **d) Walls of alveoli contain an extensive network of blood vessels.**

Transportation

1. **Transportation is a necessary evil. Justify the statement by highlighting the household and useful aspect of this process.**
   (b) Name the component of food translocated by living tissues
2. **Differentiate between xylem and phloem.**
3. **Describe double circulation in human beings. Why is it necessary**
4. **(a) Write the reaction that occurs when glucose breaks down anaerobically in yeast.**
   (b) Write the mechanism by which fishes breath in water.
   (c) Name the balloon likes structures present in lungs. List its two functions.
   (d) Name the respiratory pigment and write its role in human beings.
5. **(a) Write the name of different components of transport system in human beings and state the functions in brief.**
   (b) How is blood clot form, if a leak develops in the system of blood vessels?
6. **Briefly describe any five functions of blood**
7. **Describe double circulation in human beings. Why is it necessary?**
8. **Why is respiratory pigment needed in multicellular organisms with large body size**
9. **Which mechanism play an important role in transportation of water in plant:**
   A During day time to b. At night
10. **Give reasons for the following:**
    - **(i) The muscular walls of ventricles are thicker than the walls off atria.**
    - **(ii) Arteries have thick elastic walls.**
    - **(iii) Veins have valves**
    - **(iv) Blood goes only once through the heart in fishes.**
11. **What are capillaries**

(a) What is translocation? Why is it essential for plants?

(b) Where are the substances translocated by the phloem delivered?

12. **Draw the diagram of sectional view of human heart and on it name and label the following parts:**

(a) The chamber of the heart that pumps out deoxygenated blood.

(b) The blood vessel that carries away oxygenated blood from the heart.

(c) The blood vessel that receives deoxygenated blood from the lower part of our body.

13. Explain how water and minerals are transported in plants?

14. What is the other name of 'tissue fluid'? Write its two functions.

15. (a) Write the correct sequence of steps followed during journey of oxygen rich blood from lungs to various organs of human body.
(b) What happens when the system of blood vessels develops a leak?

16. (a) Mention any two components of blood.
(b) Trace the movement of oxygenated blood in the body.
(c) Write the function of valves present in between atria and ventricles.
(d) How are arteries different from veins,

17. Explain how the separation of oxygenated and deoxygenated blood is useful in humans? Or,
(i) What is double circulation?
(ii) Why is the separation of the right side and the left side of the heart useful? How does it help birds and mammals?Or,
Explain the process of transport of oxygenated and deoxygenated blood in a human body.
(b) Why is double circulation of blood necessary in humans?

18. What happens to the heart when muscles work harder?[2013
(b) Which body system is directly affected when a person has heart disease?
(c) Which cells increase in number during infection?

Excretion

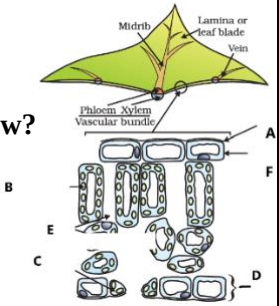
1. **How do you Unicellular cellular organism generally remove waste?**
2. **(a) Describe the structure and function of the basic filtering unit of kidney.**
   (b) List two factors on which reabsorption of water from urine depends?
3. **Give examples of solid, liquid and gaseous wastes in plants**
4. **(i) Name two waste products which are stored in old xylem in plants.**
   (ii) Name the process by which plants get rid of excess water. Name the pores through which this process takes place.
5. **How do leaves of plants help in excretion? Explain briefly**
6. **Write one specific function each of the following organs in relation with excretion in human beings:**

(i) Renal Artery (ii) Urethra (iii) Glomerulus (iv) Tubular part of nephron

7. (a) State the purpose of formation of urine.
(b) What will happen if there is no tubular reabsorption in the nephrons of kidney

8. (a) Define excretion. [2018, 2019 JMS/4
(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 the following functions:
(i) form urine. (ii) is a long tube which collects urine from kidney. (iii) store urine until it is passed out.

9. Mention the pathway of urine in our body starting from the organ of its formation to its excretion. What will happen if the tubular part of the nephron does not work properly?



10. (a) Identify the parts A - F.
(b)(i) Name the layer where light is trapped.,(ii) What determines the function of 'C' and how?
(c) Give reason why A is present where it is and not on D?
(d) How are leaves best adaptated to perform their functions.

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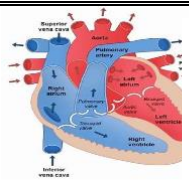
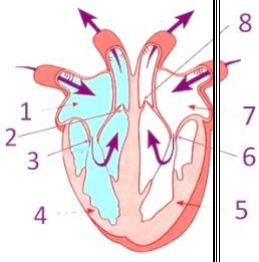
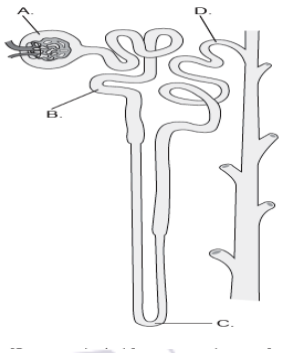


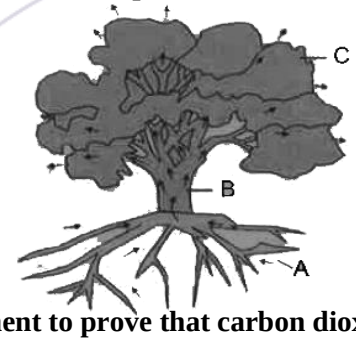


11. Identify any two parts from the above diagram which carry oxygenated and deoxygenated blood.
(ii) Explain the process of double circulation with the help of a flow chart.

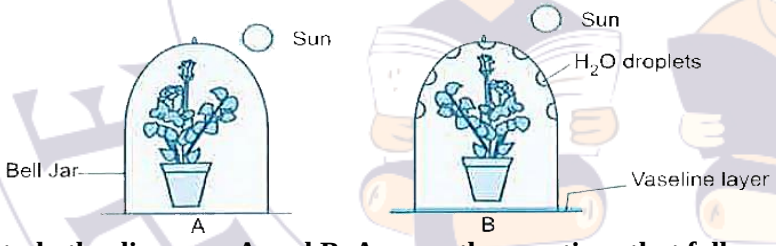
12. You have been given structure of the basic structural unit of the Human kidney.
(a) What does the structure represent?
(b) Identify A, B, C and D according to their function.
(c) Write in steps the process of urine formation



13.In the given figure, the arrows depict the movement of water in the tree.
(a) What do the arrows A, B and C represent?
(b) What kind of movement is A and what is C?
(c) Explain the three forces responsible for uptake of water.



14. While performing the experiment to prove that carbon dioxide is essential for photosynthes why were the following steps taken ?
(a) The two potted plants A and B were selected and kept in dark for 48 hours.
(b) They were then kept in sunlight.
(c) Pot B had water droplets on the bell jar whereas Pot A did not.
(d) If a watch glass containing KOH was kept inside along with Pot B, what would be result



15. Study the diagrams A and B. Answer the questions that follow :

Yellow cuscuta

Deer eating grass

(a) Identify the type of nutrition given in the figures A and B.
(b) What mode of nutrition is shown in Fig. A? Give another similar example from animal kingdom.
(c) What mode of nutrition is shown in Fig. B? State a reason why a deer will have a larger small intestine than the tiger.