

DOON PUBLIC SCHOOL BHUJ
HOME ASSIGNMENT
Class -X
Subject: Science

Dear students

This is your home assignment which you have to complete in your Social Science notebook. Write all the following very neatly in the notebook and learn the same. This Assignment will be checked on reopening of the school. Manage your time effectively as time is free, but it is priceless. I wish you to have great time with your family during this vacation. Take care and stay safe!

1. Name the artificial method for the removal of liquid nitrogenous waste from body. (1 mark)
2. How do autotrophs obtain CO₂ and N₂ to make their food? (1 mark)
3. Where does digestion of fat take place in our body? (1 mark)
4. Name the green dot like structures in some cells observed by a student when a leaf peel was viewed under a microscope. What is this green colour due to? (1 mark)
5. Name any three waste products of plants? (1 mark)
6. Name three excretory organs of man. (1 mark)
7. Name the part of plants which helps in transportation. (1 mark)
8. Name the juice secreted by the liver. (1 mark)
9. What is the function of digestive enzymes? (2 marks)
10. What is the role of saliva in the digestion of food? (2

marks)

11. Point out two differences between an artery and a vein.
(2 marks)

12. What do you mean by double circulation of blood? (2 marks)

13. Write any two points of difference between respiration in plants and animals? (2 marks)

14. Write one function each of the following components of the transport system in human beings:

Blood vessels Blood platelets Lymph Heart

15. What criteria do we use to decide whether something is alive? (3 marks)

16. What are the differences between autotrophic nutrition and heterotrophic nutrition? (3 marks)

17. Where do plants get each of the raw materials required for photosynthesis? (3 marks)

18. How are oxygen and carbon dioxide transported in human beings? How are lungs designed to maximise the area for exchange of gases?

19. What are the different ways in which glucose is oxidized to provide energy in various organism? (3 marks)

20. (A) Draw a sectional view of the human heart and label on it Aorta,

Pulmonary arteries, Vena cava, Left Ventricle. (5 marks)

(B) Why is double circulation of blood necessary in human beings?

21. Draw the structure of a nephron and label the following on it: (5 marks)

Glomerulus, Bowman's capsule, Renal artery, Collecting duct.

What happens to glucose that enters the nephron along with filtrate?

22. Explain the process of digestion of food in mouth, stomach and small intestine in human body. (5 marks)

23. A. List the three events that occur during the process of photosynthesis, (5 marks)

- Explain the role of stomata in this process.
- Describe an experiment to show that "sunlight is essential for photosynthesis."

24. (i) Draw a labelled diagram of the human respiratory system. (5 marks)

- ii. How oxygen and carbon dioxide exchanged in our body during respiration?
- iii. Explain, how the air we breathe in gets cleaned while passing through the nasal passage.

Answer Key: Life Process

1. Haemodialysis is the artificial method for the removal of liquid nitrogenous waste from body.

2. Autotrophs obtain CO₂ from atmosphere through stomata and obtain NO₂ by converting atmospheric nitrogen into nitrates by the process of nitrogen fixation.

3. Digestion of fats take place in small intestine in our body.

4. The green dot like structure in some cells observed by

a student when a leaf peel is viewed under a microscope are chloroplasts. The green color is due to green pigment chlorophyll.

5. Resins , gums and tannin are the waste products of plants.

6. Kidney, urinary bladder, urethra are the excretory organs of man.

7. Transportation in plants is facilitated by vascular bundle i.e. xylem tissue (help in transportation of water and minerals) and phloem tissue (help in transportation of photosynthesis products)

8. Bile juice is secreted by liver.

9. Function of digestive enzyme is to breakdown large and

insoluble food molecules to small soluble molecules . Eg, disaccharides help to convert maltose to glucose.

10. Saliva is secreted by salivary glands . It contains an enzyme called salivary amylase which convert starch in maltose .

11. Arteries have thick walls whereas veins have thin wall. Arteries carry blood under high pressure whereas veins carry blood under low pressure.

12. During double circulation in human beings blood passes through heart twice to complete one cycle of circulation. Pulmonary circulation and Systemic circulation complete one cycle of circulation .

13. Rate of respiration is slow in plants whereas rate of respiration is high in animals. Each part of plant respire whereas respiration in animals occurs with the help of lungs and certain organs only.

14 i. Blood vessel : all types of blood vessels i.e. arteries, veins and capillaries are connected to form a continuous closed system for transporting blood .

iv. Blood platelets : help in clotting of blood.

v. Lymph: it drains excess fluid from extracellular space back into blood.

vi. Heart : it has four chambers separated by septum which prevents the mixing of oxygenated and deoxygenated blood.

15. Visible movements like growth of organisms, green color of plants or running animals etc are the main criteria to decide whether something is alive or not.

16 i. In autotrophic nutrition organisms prepare their own food whereas in heterotrophic nutrition organisms depend upon autotroph for their food .

ii. Presence of green pigment chlorophyll and sunlight are necessary for preparation of food in autotrophic nutrition whereas chlorophyll and sunlight aren't necessary for food preparation in heterotrophic nutrition .

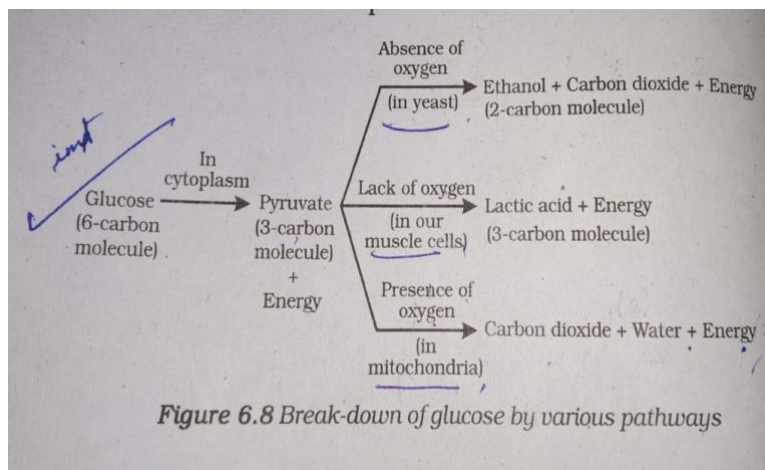
iii. green plants , algae are e.g. whereas fungi, human being are examples of heterotrophic nutrition .

17. The raw material for photosynthesis are CO_2 and water . CO_2 is taken by plants from atmosphere by stomata in case of land plants whereas aquatic plants take CO_2 dissolved in water. Water is absorbed by plants through soil by the process of osmosis and water is given to leaves by xylem.

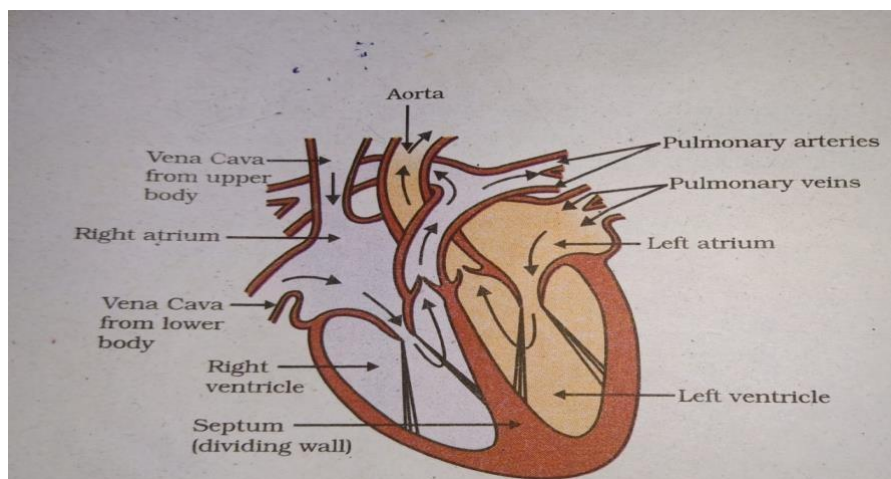
18. When we inhale air, oxygen reaches alveoli in lungs which consists of blood vessels. Oxygen diffuses from alveoli walls to the blood vessels . Blood consists of haemoglobin that binds oxygen and produce oxy haemoglobin and then oxygen reaches heart for purification and travels to the

various parts of body.

CO₂ is produced as a waste product in respiration. The CO₂ is transported in dissolved form in the blood, which carries it to lungs where it diffuses into alveoli and then it reaches trachea and finally discarded from the body through nostrils. Lungs contain balloon-like structures called alveoli that provide maximum surface area for the exchange of gases. Alveoli are facilitated with an extensive network of blood vessels for the exchange of gases.



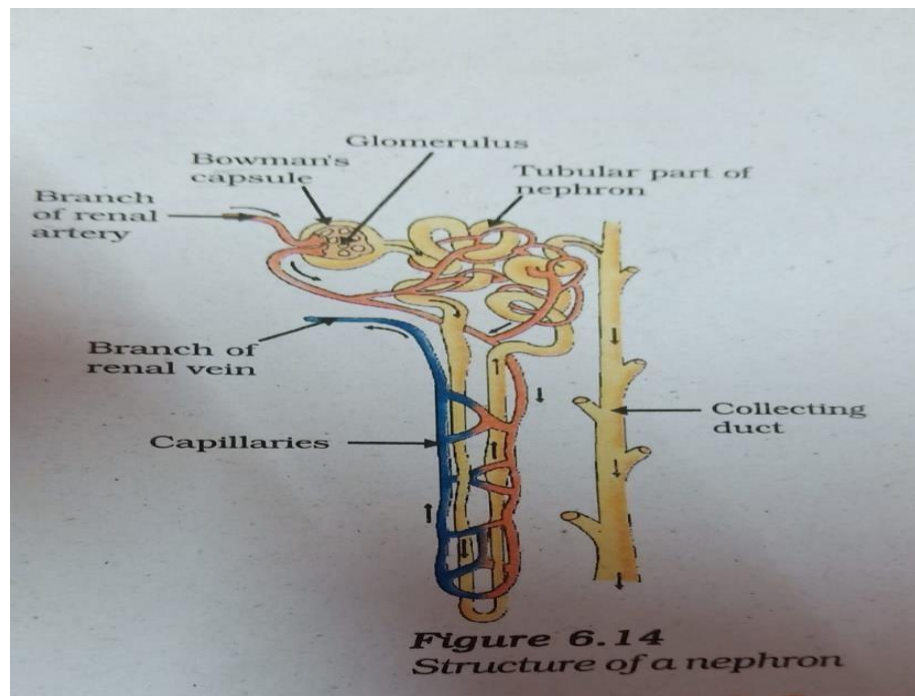
19)



20(a)

. (B) Human beings are warm blooded so they constantly need energy in order to maintain their body temperature thus double circulation of blood is necessary in human beings to prevent mixing of oxygenated and deoxygenated blood in order to make circulatory system more efficient and to maintain the constant temperature.

21. Glucose that enters the nephron along with nephron gets reabsorbed in PCT by the process called tubular



reabsorption.

22. Process of digestion of food in mouth, stomach and small intestine in human body is as follows:

Mouth: The process of digestion starts in the mouth. The mouth contains saliva secreted by salivary glands that moistens the food. It contains an enzyme called salivary amylase that converts starch into maltose.

Stomach: On the walls of the stomach, gastric glands are present.

which secrete gastric juice. Gastric juice consist of :

Pepsin : it help to convert protein into peptons .

Renin : it help in coyagulation of milk

Hydrochloric acid : it provide acidic medium for the action of pepesin amd also kill the microbes present in food.

Mucus : it act as a protective layer and avoid contact of acid with stomach wall.

Small intestine: It is the site of complete digestion of carbohydrate , protein , fats. It's receive secretion from liver and pancreas

(a) Bile juice: it is secreted by liver and store in gall bladder.

It makes the alkaline medium for pancreatic enzyme to act. It help in emulsification i.e. covert big globules of fat to small globules.

(b) Pancreatic juice: it is secreted by pancreas. It contains enzymes like amylase for digesting starch , trypsin for digesting protein and lipase for breaking down emulsified fats.

(c) intestinal juice: it is secreted by the walls of small intestine. It contain enzymes disaccridase which convert maltose into glucose, trypsin which convert peptons into amino acid and lipase whichconvert fat into fatty acid and glycerol.

23 A.Events that occur during during the process of photosynthesis are :

i. Absorbption of light energy by cholorophyll.

- ii. Conversion of light energy into chemical energy and splitting of water molecules into hydrogen and oxygen.
- iii. reduction of carbon dioxide to carbohydrates.

B. Stomata helps in the exchange of gases and transpiration i.e. loss of water.

C. Take a potted plant with variegated leaves e.g. money plant. Keep

the plant in a dark room for three days so that all the starch gets used up. Now keep the

plant in sunlight for about six hours.

Pluck a leaf from the plant. Mark the green areas in it and trace them on a sheet of paper. Dip

the leaf in boiling water for a few minutes.

After this, immerse it in a beaker containing alcohol.

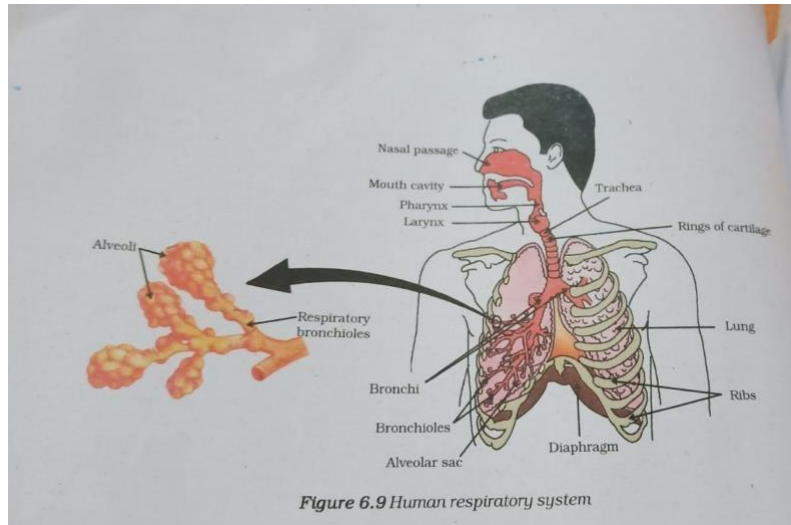
Carefully place the above beaker in a water bath and heat till the alcohol begins to boil.

Now dip the leaf in a dilute solution of iodine for a few minute. Take out the

leaf and rinse off the iodine solution.

Observe the color of the leaf and compare this with the tracing the leaf done in the beginning.

Thus we can conclude that sunlight is essential for photosynthesis.



24.(I)

(II) Exchanges of gases i.e. CO_2 and O_2 take place in alveoli present in lungs. Alveoli are balloon like structure that increase surface area for respiration. Exchanges of CO_2 and O_2 is as follow:

Alveoli is facilitated with number of blood vessels. Through diffusion O_2 reach blood vessels and CO_2 comes out in alveoli. Blood consist of haemoglobin that bind O_2 and produce oxy haemoglobin and the blood vessels carry O_2 to heart. From heart it is distributed to different parts of body.

(III) The air we breathe in gets cleaned while passing through the nasal passage as it consist of musucs and hairs that trap the dirt and filtrate the air we breathe.