Chapter-11

Transportation in Animals and Plants

SOLUTIONS:

EXERCISES:

1. Match structures given in column I with functions given in column II.

COLUMN I	COLUMNII
(i) stomata	(a)Absorption of water
(ii) Xylem	(b)Transpiration
(iii) Root hairs	(c)Transport of food
(iv) Phloem	(d)Transport of water
	(e)Synthesis of carbohydrates

Ans:-Stomata – Transpiration
Xylem –Transport of water
Root hairs– Absorption of water
Phloem – Transport of food

2. Fill in the blanks:-

(i) The blood from the heart is transported to all parts of the body by the arteries.

(ii) Haemoglobin is present in red blood cells.

(iii) Arteries and veins are joined by a network of capillaries.

(iv) The rhythmic expansion and contraction of the heart is called heartbeat.

(v) The main excretory product in human beings is urea.

(vi) Sweat contains water and salts.

(vii) Kidneys eliminate the waste materials in the liquid form called urine.

(viii) Water reaches great heights in the trees because of suction pull caused by transpiration.

3. Choose the correct option:-
(a) In plants, water is transported through
(i) Xylem (ii)Phloem
(iii)Stomata (iv)Root hairs

Ans:-(i)Xylem.

(b) Water absorption through roots can be increased by keeping the plants
(i) In the shade
(ii) In dim light
(iii) Under the fan
(iv) Covered with a polythene bag

Ans:-(iii) under the fan.

4. Why is transport of materials necessary in a plant or in an animal? Explain.

Ans:-Transport of materials is necessary in a plant or an animal because all living organisms need energy to carry out vital activities of life. If the necessary nutrients are not transported to the different parts of the body, they will not be able to survive.

5. What will happen if there are no platelets in the body?

Ans:-When there is bleeding in the body due to injury, the blood platelets in the blood form clots to stop this bleeding. If there are no platelets in the blood, there will be huge loss of blood leading to death.

6. What are stomata? Give two functions of stomata.

Ans:-Stomata are tiny pores present on the surface of leaves. They are surrounded by guard cells. Two functions of stomata are - (i) Exchange of gases i.e carbon dioxide and oxygen, takes place through stomata.
(ii)The excess water of the plant body is given out through the stomata.

7. Does transpiration serve any useful function in the plants? Explain.

Ans:-Transpiration serves useful functions in plants. They are:-
(i) It removes excess water from the plants.
(ii) It helps to cool down the plant during summers. It helps to transport water and minerals towards the leaves from the roots in tall trees.

8. What are the components of blood?

Ans:-The components of blood are (i)Plasma (ii)Red blood cells (iii)White blood cells (iv) Platelets.

9. Why is blood needed by all the parts of a body?

Ans:-Blood is needed by all the parts of a body because blood supplies the oxygen and digested food to various parts of the body to provide essential energy to perform the vital functions.

10. What makes the blood look red?

Ans:-The presence of haemoglobin makes blood look red.

11. Describe the function of the heart.

Ans:-The heart is divided into four chambers to avoid mixing of blood containing oxygen and carbon dioxide. The four chambers are right auricle, right ventricle, left auricle and left ventricle. The right auricle and ventricle receive blood with carbon dioxide from all parts of the body. The collected blood is then purified in the lungs. In lungs the exchange of gases takes place and purified blood is sent back to left auricle and then to left ventricle. From the left ventricle the purified blood is carried to all parts of the body through arteries.

12. Why is it necessary to excrete waste products?

Ans:-When the cells in our body perform their functions, certain toxic wastes products are given out. If these toxic wastes are not released from our body and get mixed with blood, the cells of the body will be damaged which is harmful for our bodies. Therefore, it is necessary to excrete waste products.

13. Draw a diagram of the human excretory system and label the various parts.
Ans:

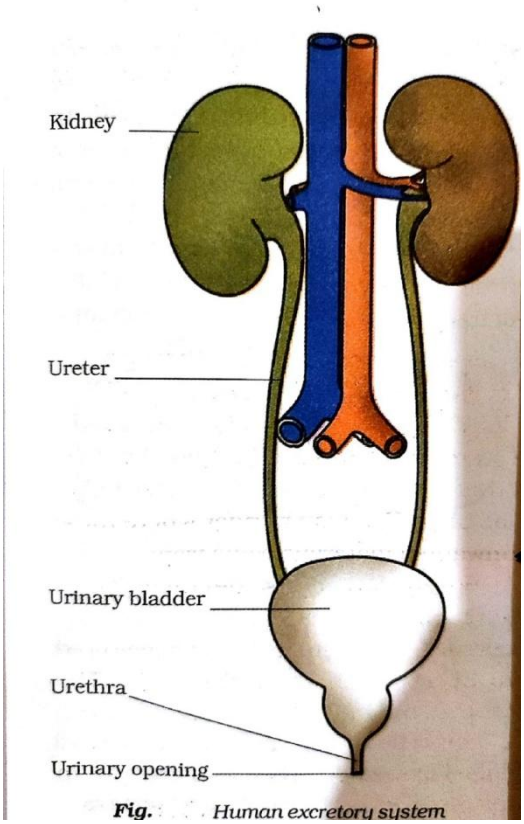


Fig. *Human excretory system*

EXTRA QUESTIONS AND ANSWERS

1. What is blood?

Ans:-Blood is the fluid which flows in the blood vessels. It is circulated throughout the body by the pumping action of heart.

2. Write the functions of blood.

Ans:-The function of blood are:-

i) It transports digested food from the small intestine to the other parts of the body.

ii) It carries oxygen from the lungs to the cells of the body.

Iii)It also transports waste for removal from the body.

3. What are the different components of blood?

Ans:-The different components of blood are:-

i) Red blood corpuscles (R.B.C) or erythrocytes.

These cells are responsible for transporting oxygen to different parts of the body with the help of haemoglobin.

ii) White blood corpuscles (W.B.C) or leucocytes.

W.B.C protects our body against harmful germs and diseases.

iii) Platelets–They help in clotting of blood at the time of an injury.

iv) Plasma–It is the fluid medium which transports digested food as well as metabolic waste products.

4. Why is blood red in colour?

Ans:-Blood is red in colour due to the presence of red pigment called haemoglobin.

5. What are blood vessels?

Ans:-Blood vessels are the kind of tubes or pipes which carry blood throughout the body.

There are three types of blood vessels-

i) Arteries ii) Veins iii) Capillaries.

6. Write the functions of different types of blood vessels.

Ans:-i) Arteries–Arteries carry oxygen rich blood from the heart to all parts of the body.

ii) Veins–Veins are vessels which carry carbon dioxide rich blood from all parts of the body back to the heart.

iii) Capillaries– Capillaries are extremely thin blood vessels which connects arteries to veins.

7. What is pulse?

Ans:-The throbbing movement produces when blood is pumped into an artery by the heart is called pulse.

8. What is pulse rate?

Ans:-The number of beats per minute is called pulse rate.

9. What is the normal pulse rate of human body?
Ans:-The normal pulse rate of human body is between 72 to 80 beats per minute.

10. What is heart?
Ans;-Heart is an organ which beat continuously to act as a pump for the transport of blood.

11. What is heart beat?
Ans:- The rhythmic contraction following by relaxation of heart is called heart beat.

12. Name the instrument used by doctor to listen our heart beat.
Ans:-Stethoscope.

13. Who discovered the blood circulation?
Ans:-William Harvey discovered the blood circulation.

14. Name the blood vessel that bring oxygenated blood to the human heart.
Ans;-Pulmonary vein.

15. Name the largest artery.
Ans:-Aorta.

16. What are the different chambers of heart? Write their functions.
Ans:-The different chambers of heart are-
i) Left arteries-It receives oxygenated blood from lungs through pulmonary veins and pour it into left ventricle.

ii) Right arteries-It receives deoxygenated blood from various body parts through superior and inferior venacava and pours it into right ventricles.

iii) Left ventricle–It pumps oxygenated blood to various parts of the body through aorta.

iv) Right ventricle-It pumps deoxygenated blood into lungs through pulmonary artery.

17. Draw the diagram of the sections of human heart.
Ans:-

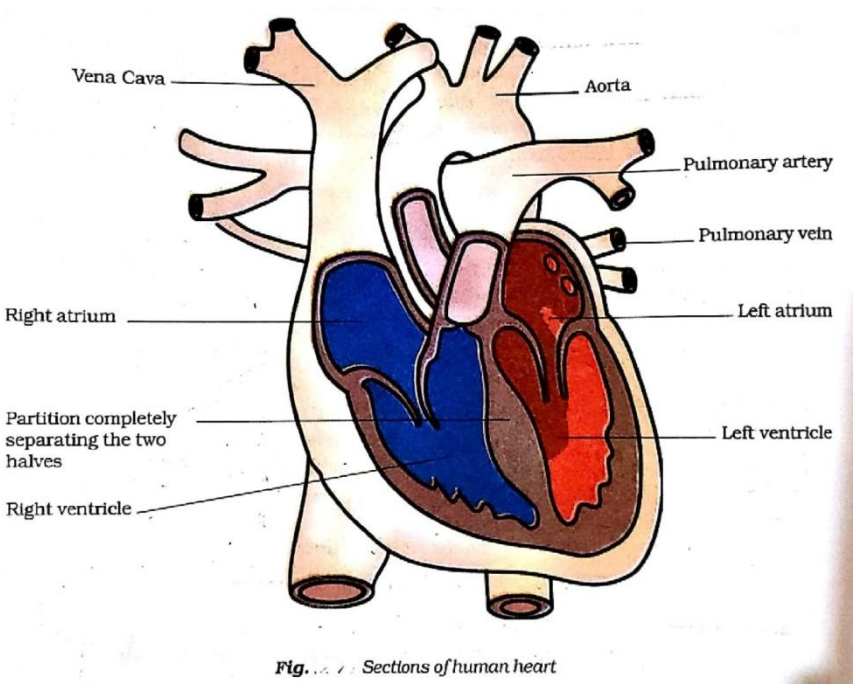


Fig. . . . Sections of human heart

18. Explain briefly the working of stethoscope.

Ans:-The stethoscope consists of a chest piece that carries a sensitive diaphragm, two ear pieces and a tube joining the parts. Doctors use stethoscope to amplify the sound of the heart and examine its condition.

19.How is the heart beat and pulse rate related?

Ans;-Each heart beat generates one pulse in the arteries and the pulse rate per minute indicates the rate of the heart beat.

20. Why is rhythmic beating of the various chambers of the heart important?

Ans;-The rhythmic beating of the various chambers of the heart is important as it maintains circulation of blood and transport of substances to the different parts of the body.

21. How does circulation of food and oxygen occur in lower organisms like sponges and hydra?

Ans;-The water in which sponges and hydra live brings food and oxygen a sit enters their body. The water carries away waste materials and carbon dioxide as it moves out. Thus, they do not need a circulatory system like the blood.

22. What is excretion?

Ans:-The process of removal of wastes produced in the cells of the living organisms is called excretion.

23. Explain the process of excretory system in human.

Ans;-The human excretory system consists of the following parts. They are

i) kidneys-When the blood reaches the two kidneys, it contains both useful and harmful substances. The useful substances are absorbed back into the blood. The wastes dissolves in water are removed as urine.

ii) Ureters–From the kidneys, tube–like pipe called ureters carry the urine to the bladder.

iii) Urinary bladder–Urine is stored in the urinary bladder.

iv) Urethra–From the urinary bladder, urine is passed out through the urinary opening at the end of a muscular tube called urethra.

24. Why do we sweat?

Ans;- Sweating is a way of cooling down our body. By promoting heat loss through evaporation, sweat helps to regulate our body temperature..

25. How do aquatic animals excrete their wastes?

Ans:-Aquatic animals excrete cell waste as ammonia which directly dissolves in water.

26. What is dialysis?

Ans:-Dialysis is a process of filtering blood periodically through an artificial kidney.

27. What are the contents of urine?

Ans:-The urine consists of 95%water, 2.5% urea and 2.5% other waste products.

28. How much quantity of urine is passed normally by an adult human being?

Ans:-An adult human being normally passes1-1.8 litres of urine in 24 hours.

29. Define photosynthesis.

Ans:-The synthesis of food by the plants with the help of water, carbon dioxide, chlorophyll and sunlight is called photosynthesis.

30. Why should food be made available to every cell of an organism?

Ans:-Food gives energy to every cell of our body to enable them to carry out vital activities of life. Therefore, food should be made available to every cell of an organism.

31. What is the function of root hairs?

Ans:-Root hairs increase the surface area of the root for the absorption of water and mineral nutrients dissolved in water.

32. What is a tissue?

Ans:-A tissue is a group of cells that perform specialized function in an organism.

33. What are the two vascular tissues of plants? Give their functions. Ans:-The two vascular tissues of plants are: (a) xylem (b) phloem. Their functions are:

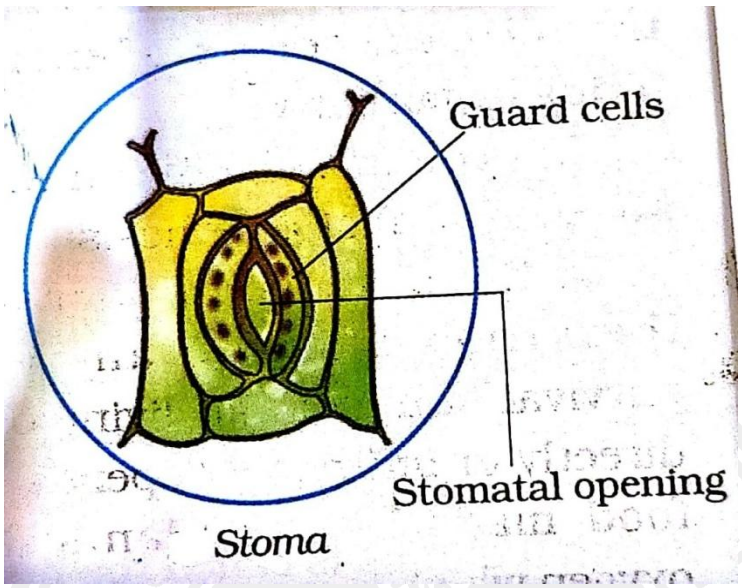
(a) Xylem-The xylem transports water and minerals from the roots to other parts of plant.

(b) Phloem–The phloem transports the food synthesized at leaves to other parts of the plant.

34. Define transpiration.

Ans:-The excess water from the plant body evaporates through the stomata present on the surface of the leaves. This process is called transpiration.

35. Draw the diagram of a
stomata Ans:-



36. Draw a schematic diagram of the circulatory system of human.
Ans:-

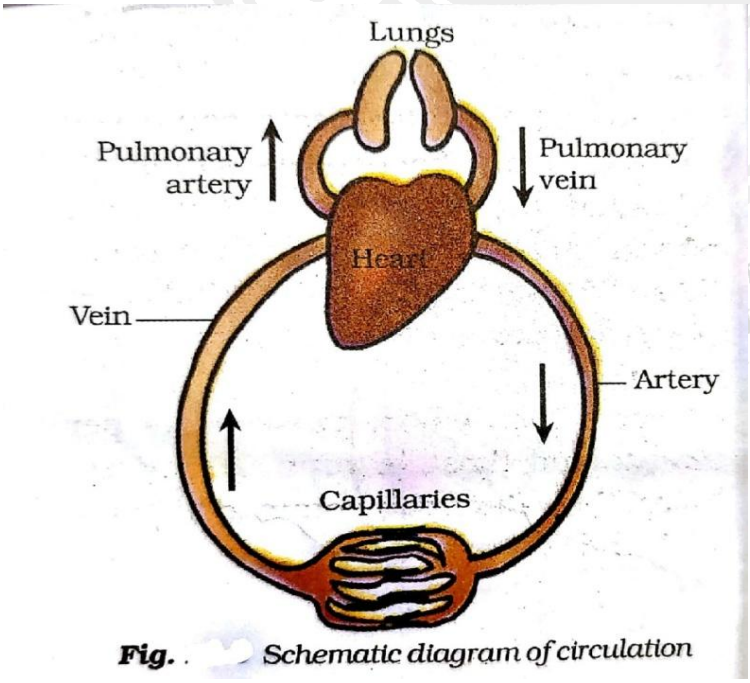


Fig. . Schematic diagram of circulation