NCERT Solution

Transportation in Animals and Plants

Exercise

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

Column I	**Column II**
(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

Answer:

Column I	Column II
(i) Stomata	(b) Transpiration
(ii) Xylem	(d) Transport of water
(iii) Root hairs	(a) Absorption of water
(iv) Phloem	(c) Transport of food

2. Fill in the blanks.

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

(ii) Haemoglobin is present in _____ cells.

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

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

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

(vi) Sweat contains water and _____.

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

(viii) Water reaches great heights in the trees because of suction pull caused by evaporation of water from leaves due to process of _____.

Answer:

(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 (RBC)** cells.

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

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

(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 evaporation of water from leaves due to process of **transpiration.**

3. **Choose the correct options:**

(a) In plants, water is transported through

(i) Xylem (ii) Phloem (iii) Stomata (iv) Root hair

Answer: (i)

In plants, water is transported through 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

Answer: (iii)

Water absorption through roots can be increased by keeping the plants under the fan.

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

Answer:

Transport of materials is necessary in plant or in animals as all organisms need food, nutrition, water and oxygen for survival. The food is the source of energy and every cell of an organism gets energy by the breakdown of glucose. The cells use this energy to carry out vital activities of life. Therefore, food must be made available to every cell of an organism. The food needs to be transport to various parts of the body. Further, animals need to transport wastes to parts from where they can be removed out of the body.

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

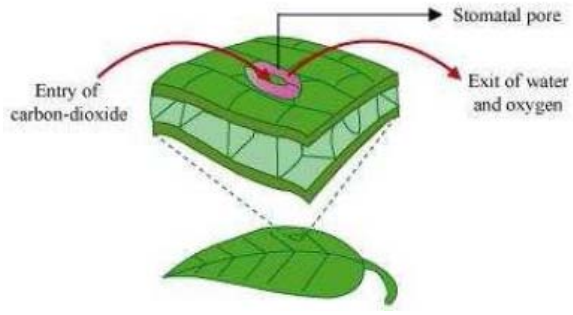
Answer:

The platelets are another type of cells in blood, which are responsible for formation of clot in blood when it comes in contact with air. So this prevents excess bleeding from the injury as it plugs the skin opening by clot formation on it. If there are no platelets in the blood, then we may die from a small injury due to excess bleeding as there will be no clotting to plug it.

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

Answer:

Stomata are tiny pores present on the surface of the leaves. These pores are surrounded by 'guard cells'



The functions of Stomata as follows:

- Stomata help in the exchange of gases during the photosynthesis.
- Evaporation of water from leaf surface occurs through stomata.

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

Answer:

Plants absorb mineral nutrients and water from the soil. Not all the water absorbed is utilized by the plant. The water evaporates through the stomata present on the surface of the leaves by the process of transpiration. The evaporation of water from leaves generates a suction pull (the same that you produce when you suck water through a straw) which can pull water to great heights in the tall trees. Transpiration also cools the plant.

8. What are the components of blood?

Answer:

The main components of bloods are:

1. Plasma: The fluid part of the blood is called plasma.

2. Red Blood Cells (RBC) : They contain a red pigment called haemoglobin. Haemoglobin bind with oxygen and transports it to all the parts of the body and ultimately to all the cells. It will be difficult to provide oxygen efficiently to all the cells of the body without haemoglobin. The presence of haemoglobin makes blood appear red.

3. White Blood cells (WBC): They fight against germs that may enter our body thus provide an effective defense against infection, disease etc.

4. Platelets: They are another type of cells in blood, responsible for the formation of dark red clot in the blood when it comes in contact with air. They help in preventing excess bleeding from the injuries by plugging the skin openings or cuts with a thick dark red clot.

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

Answer:

The blood is needed by all parts of the body as it transports substances like digested food from the small intestine to the other parts of the body. It carries oxygen from the lungs to the cells of the body. It also transports waste for the removal from the body.

10. What makes the blood look red?

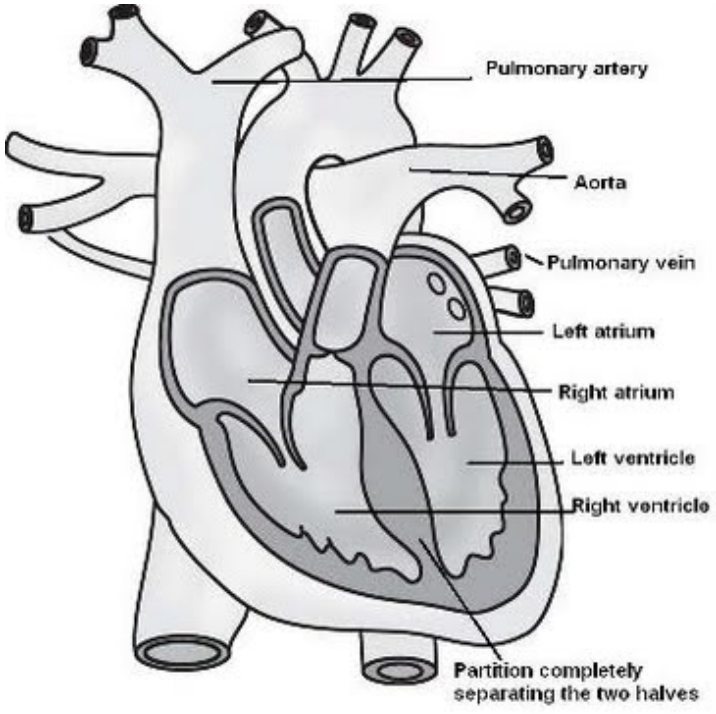
Answer :

The presence of haemoglobin makes blood appear red.

11. Describe the function of the heart.

Answer :

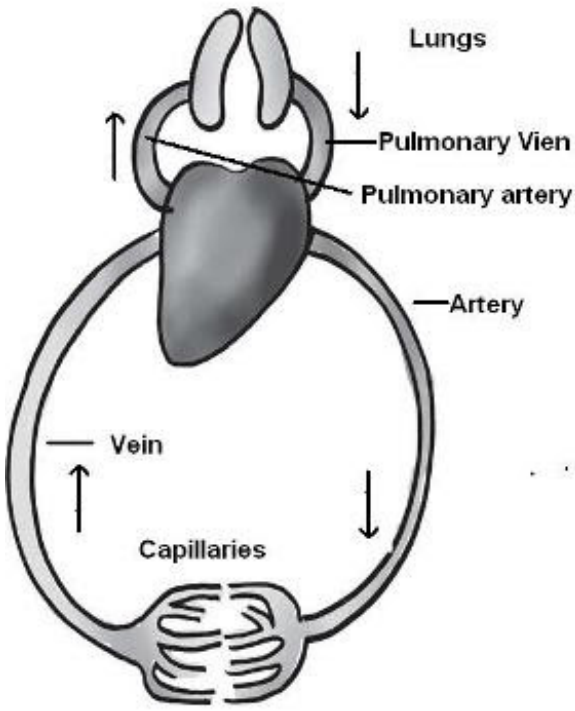
The heart is an organ which beats continuously to act as a pump for the transport of blood, which carries other substances with it. The heart is located in the chest cavity with its lower tip slightly tilted towards the left. Heart is roughly the size of a fist. To avoid mixing up of blood rich in oxygen with the blood rich in carbon dioxide, the heart has four chambers. The two upper chambers are called the atria (singular: atrium) and the two lower chambers are called the ventricles The partition between the chambers helps to avoid mixing up of blood rich in oxygen with the blood rich in carbon dioxide.



Sections of human heart

To understand the functioning of the circulatory system, start from the right side of the heart as show in the in Fig and follow the arrows. These arrows show the direction

of the blood flow from the heart to the lungs and back to the heart from where it is pumped to the rest of the body.



Schematic diagram of circulation

The walls of the chambers of the heart are made up of muscles. These muscles contract and relax rhythmically. This rhythmic contraction followed by its relaxation constitutes a heartbeat. The rhythmic beating of the various chambers of the heart maintains circulation of blood and transport of substances to the different parts of the body.

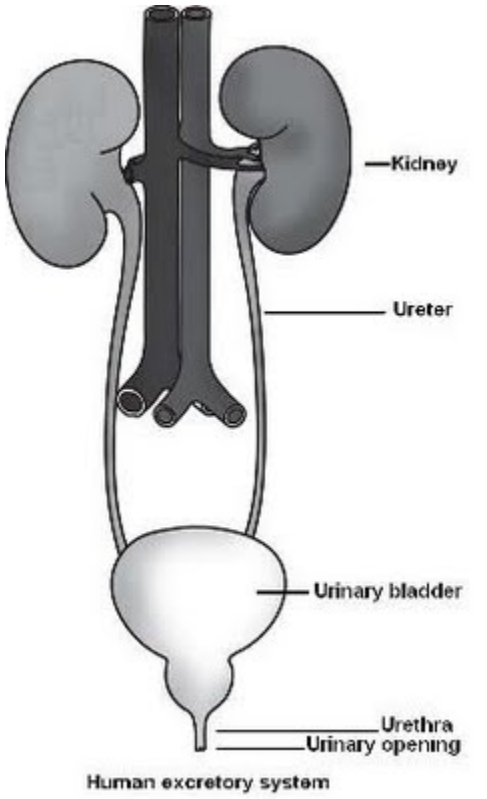
12. Why is it necessary to excrete waste products?

Answer:

When our cells perform their functions, certain waste products are released. These are toxic and hence need to be removed from the body. The process of removal of wastes produced in the cells of the living organisms is called excretion. The parts involved in excretion forms the excretory system.

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

Answer:



Human excretory system