

Transportation in Animals and Plants

In text Questions

Page No. 124

1. Which side of the heart will have oxygen rich blood and which side will have carbon dioxide-rich blood?

Ans. The left side of the heart will have oxygen-rich blood and the right side of the heart will have carbon dioxide-rich blood.

Page No. 128

2. How does the water move from root to leaves?

Ans. The water moves from root to leaves with the help of specialized cells called vascular tissue. The vascular tissue for the transport of water and nutrients in the plant is called xylem.

Page No. 129

3. Paheli says her mother puts ladyfinger and other vegetables in water if they are somewhat dry. She wants to know how water enters into them.

Ans. By soaking the ladyfinger and other vegetables in water, the skin of the vegetables becomes moist and water starts moving from one cell to another until the vegetables are fresh again.

4. Why plants absorb a large quantity of water from the soil, then given it off by transpiration?

Ans. Plants absorb a large quantity of water from the soil because plants need nutrients which are dissolved in water.

The excess water evaporates through the stomata present on the surface of the leaves by the process of transpiration.



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

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

Ans. The correct match of the both columns:

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

2. Fill in the blanks.

- (a) The blood from the heart is transported to all parts of the body by the
- (b) Haemoglobin is present incells.
- (c) Arteries and veins are joined by a network of
- (d) The rhythmic expansion and contraction of the heart is called
- (e) The main excretory product in human beings is
- (f) Sweat contains water and
- (g) Kidneys eliminate the waste materials in the liquid form called.....
- (h) Water reaches great heights in the trees because of suction pull caused by

- Ans.
- (a) arteries
 - (b) Red Blood Cells (RBCs)
 - (c) capillaries
 - (d) heartbeats
 - (e) urea
 - (f) salts
 - (g) urine
 - (h) transpiration

3. Choose the correct option.

(a) In plants, water is transported through

(i) xylem (ii) phloem

(iii) stomata (iv) root hair

(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. (a) (i) In plants, water is transported through xylem.

(b) (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.

Ans. All organisms (plants and animals) need food, water and oxygen for survival. They need to transport all these to various parts of their body. Further, animals need to transport wastes to the parts from where they can be removed or excreted. That's why transportation is necessary in both plants and animals.

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

Ans. The blood clot is formed due to the presence of the cells called platelets in the blood. If there were no platelets in the blood, then bleeding caused by a cut from an injury would not stop. This may cause loss of too much blood from the body of a person leading to death.

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

Ans. The tiny pores present on the surface of leaves are called stomata. Functions of stomata are as follows:

1. Stomata help in the exchange of gases.

2. The water evaporates through the stomata present on the surface of the leaves by the process of transpiration.

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

Ans. Transpiration is the evaporation of water from the surface of plants. It is important for plants as

(i) It generates a force which pulls up water absorbed by the roots from the soil, to reach the stem and leaves.

(ii) It also helps in cooling in plants.

8. What are the components of blood?

Ans. Blood is a liquid connective tissue. It has two components:

(i) **Plasma** The fluid part of the blood is called plasma. It is pale yellow, sticky liquid.

(ii) **Cells of blood** There are three kinds of blood cells suspended in the plasma (RBCs, WBCs and platelets).

(a) **Red Blood Cells** (RBCs) These are also called erythrocytes, carry oxygen. They contain a red pigment called **haemoglobin** which is responsible for transport of O_2 .

(b) **White Blood Cells** (WBCs) These are also called leukocytes and lack haemoglobin. These cells fight against germs that may enter our body.

(c) **Platelets** These are also called thrombocytes, whose function (along with the coagulation factors) is to stop bleeding by the formation of blood clot.

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

Ans. Blood is needed by all parts of the body due to following reasons:

(i) All the parts of the body need food and oxygen, which is carried to them by blood.

(ii) It carries CO_2 also a waste product to the lungs, so that it can be exhaled easily.

(iii) It fights against diseases and infection and also helps in the formation of blood clot at the time of a cut.

(iv) It transmits heat, thus regulating the body temperature.

10. What makes the blood look red?

Ans. The red pigment, (haemoglobin), present in the red blood cells of the blood makes the blood look red. The haemoglobin carries oxygen and transports it to all the parts of the body.

11. Describe the function of the heart.

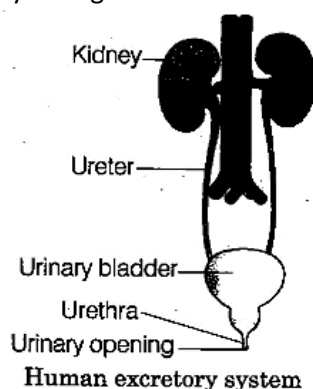
Ans. The heart acts as a pump for the transport of blood. The human heart is divided into four chambers. The upper two chambers are called right and left atrium and the lower two chambers are called the right and left ventricles. The right side of the heart, i.e. the right auricle and ventricle receive carbon dioxide rich blood from all parts, of the body and transport it to the lungs. Its left side, i.e. the left auricle and ventricle, receive oxygen-rich blood from the lungs and transport it to all parts of the body.

12. Why is it necessary to excrete waste products?

Ans. When our cells perform their functions, certain waste products are produced. These waste products are toxic and hence need to be removed from the body. The process of removing waste products produced in the cells of the living organisms is called excretion.

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

Ans. Labelled diagram of human excretory system given below:





NCERT

Exemplar

(Problems-Solutions)

Multiple Choice Questions

1. The muscular tube through which stored urine is passed out of the body is called

- (a) kidney (b) ureter
(c) urethra (d) urinary bladder

Ans. (c) The muscular tube through which stored urine is passed out of the body is called urethra.

2. They are pipe-like, consisting of a group of specialized cells. They transport substances and form a two-way traffic in plants. Which of the following terms qualify for the features mentioned above?

- (a) Xylem tissue (b) Vascular tissue
(c) Root hairs (d) Phloem tissue

Ans. (d) Phloem tissue are pipe-like, consisting of a group of specialized cells. They transport substances and form a two-way traffic in plants.

3. The absorption of nutrients and exchange of respiratory gases between blood and tissues takes place in

- (a) veins (b) arteries
(c) heart (d) capillaries

Ans. (d) The absorption of nutrients and exchange of respiratory gases between blood and tissues takes place in capillaries.

4. In which of the following parts of human body are sweat glands absent?

- (a) Scalp (b) Armpits
(c) Lips (d) Palms

Ans. (c) Sweat glands are absent in lips.

5. In a tall tree, which force is responsible for pulling water and minerals from the soil?

- (a) Gravitational force
(b) Transportation force
(c) Suction force
(d) Conduction force

Ans. (c) In a tall tree, suction force is responsible for pulling water and minerals from the soil.

6. Aquatic animals like fish excrete their wastes in gaseous form as

- (a) oxygen (b) hydrogen
(c) ammonia (d) nitrogen

Ans. (c) Aquatic animals like fish excrete their wastes in gaseous form as ammonia.

Very Short Answer Type Questions

7. Veins have valves which allow blood to flow only in one direction. Arteries do not have valves. Yet the blood flows in one direction only. Can you explain why?

Ans. Veins have valves to prevent blood from flowing backwards and pooling, whereas arteries pump blood at very high pressures, which naturally prevents back flow.

8. What is the special feature present in a human heart which does not allow mixing of blood when oxygen-rich and carbon dioxide-rich blood reach the heart?

Ans. In human, the heart has four chambers. The two upper chambers are called the atria 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.

9. Name the organ which is located in the chest cavity with its lower tip slightly tilted towards the left.

Ans. The heart is located in the chest cavity with its lower tip slightly tilted towards the left.

Short Answer Type Questions

10. Arrange the following statements in the correct order in which they occur during the formation and removal of urine in human beings.

- (a) Ureters carry urine to the urinary bladder.
- (b) Wastes dissolved in water is filtered out as urine in the kidneys.
- (c) Urine stored in urinary bladder is passed out through the urinary opening at the end of the urethra.
- (d) Blood containing useful and harmful substances reaches the kidneys for filtration.
- (e) Useful substances are absorbed back into the blood.

Ans. The correct order of the formation and removal of urine in human beings is

- (d) Blood containing useful and harmful substances reaches the kidneys for filtration.
- (e) Useful substances are absorbed back into the blood.
- (b) Wastes dissolved in water is filtered out as urine in the kidneys.
- (a) Ureters carry urine to the urinary bladder.
- (c) Urine stored in urinary bladder is passed out through the urinary opening at the end of the urethra.

11. Paheli uprooted a rose plant from the soil. Most of the root tips with root hairs got left behind in the soil. She planted it in a pot with new soil and watered it regularly. Will the plant grow or die? Give reason for your answer.

Ans. Possible answers are

- (i) Without the root hairs, the roots will not be able to absorb water and nutrients and the plant will die.
- (ii) The stem of the rose plant may grow new roots and the plant will live.
- (iii) The rose plant may not be able to survive in a different types of soil.

**12. (a) Name the only artery that carries carbon dioxide rich blood.
(b) Why is it called an artery if it does not carry oxygen rich blood?**

Ans. (a) **Pulmonary artery** carries carbon dioxide-rich blood.
(b) It is called an artery because it carries blood away from the heart.

**13. Boojho's uncle was hospitalized and put on dialysis after a severe infection in both of his kidneys.
(a) What is dialysis?
(b) When does it become necessary to take such a treatment?**

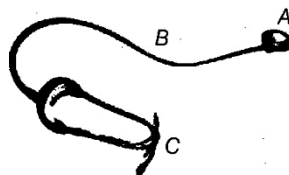
Ans. (a) The procedure used for cleaning the blood of a person by separating the waste product (urea) from blood it is called dialysis.
(b) In the event of kidney failure, dialysis is necessary.

14. Name the process and the organ which helps in removing the following wastes from the body.
 (a) Carbon dioxide (b) Undigested food
 (c) Urine (d) Sweat

Ans.

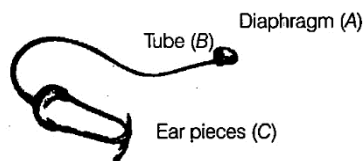
	Waste	Process	Organ
(a)	Carbon dioxide	Exhalation	Lungs
(b)	Undigested food	Egestion	Large intestine and anus
(c)	Urine	Excretion	Kidneys
(d)	Sweat	Perspiration (sweating)	Sweat glands

15. Observe given figure and answer the given questions



- (a) Name the instrument.
 (b) Label the parts A, B and C.

- Ans. (a) The name of the given instrument is stethoscope.
 (b)



16. Paheli noticed water being pulled up by a motor-pump to an overhead tank of a five-storeyed building. She wondered how water moves up to great heights in the tall trees standing next to the building. Can you tell why?

- Ans. The evaporation of water from leaves (transpiration) generates a suction pull. This pull help the water to reach at great heights in the tall trees standing next to the building.

Long Answer Type Questions

17. Match the parts of the heart in Column I with the direction of flow of blood in Column II.

	Column I		Column II
(a)	Right ventricle	(i)	Pushes blood into the pulmonary artery.
(b)	Pulmonary veins	(ii)	Take deoxygenated blood from the heart to lungs.
(c)	Left atrium	(iii)	Receives blood from different parts of the body.
(d)	Pulmonary arteries	(iv)	Bring oxygenated blood from lungs to the heart.
(e)	Left ventricle	(v)	Pushes blood into the aorta.
(f)	Right auricle	(vi)	Receives deoxygenated blood from the pulmonary veins.

- Ans. The correct match of the both columns:

	Column I		Column II
(a)	Right ventricle	(i)	Pushes blood into the pulmonary artery.

(b)	Pulmonary veins	(ii)	Bring oxygenated blood from lungs to the heart.
(c)	Left atrium	(iii)	Receives deoxygenated blood from the pulmonary veins.
(d)	Pulmonary arteries	(iv)	Take deoxygenated blood from the heart to lungs.
(e)	Left ventricle	(v)	Pushes blood into the aorta.
(f)	Right auricle	(vi)	Receives blood from different parts of the body.

18. Fill in the blanks of the following paragraph using just two words-arteries and veins.

.....(a)..... carry oxygen-rich blood from the heart to all parts of the body and (b)..... carry carbon dioxide-rich blood from all parts of the body back to the heart,(c)..... have thin walls and(d)..... have thick elastic walls. Blood flows at high pressure in(e)..... . Valves are present in(f)..... which allow blood to flow only towards the heart. (g)..... divide into smaller vessels. These vessels further divide into extremely thin tubes called capillaries. The capillaries join up to form(h).....

Ans. (a) arteries (b) veins (c) veins (d) arteries (e) arteries (f) veins (g) arteries
(h) veins

19. While learning to ride a bicycle, Boojho lost his balance and fell. He got bruises on his knees and it started bleeding. However, the bleeding stopped after sometime.

(a) Why did the bleeding stop?

(b) What would be the colour of the wounded area and why?

(c) Which type of blood cells are responsible for clotting of blood?

Ans. (a) When a cut or wound start bleeding after sometime, a clot is formed which plugs the cut and bleeding stops.

(b) Wounded area is dark red in colour due to clotting of blood.

(c) The blood clot is formed due to the presence of the cells called platelets in the blood.