

Transportation in Plants and Animals

1. The parts of human excretory system are given below.

(i) Bladder (ii) Kidney
(iii) Ureter (iv) Urethra

In which order does urine pass through these structures?

- (a) (ii) → (iii) → (i) → (iv)
(b) (i) → (iii) → (iv) → (ii)
(c) (ii) → (iv) → (i) → (iii)
(d) (iv) → (iii) → (i) → (ii)

2. Read the following statements.

- (i) ___ tissue is involved in transportation of food in plants.
(ii) Transpiration produces a ___ pull in the plant that causes the water to move upwards.
(iii) ___ is the loss of water from leaves and other aerial parts of a plant.
(iv) ___ are known as soldiers of the body.

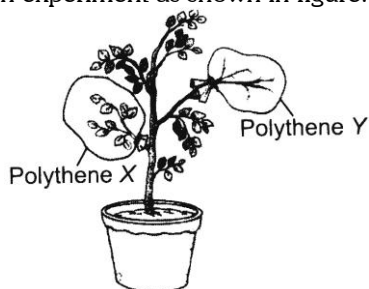
Select the option that correctly fills up the blanks in any two of the statements.

- (a) (i)-Phloem; (iii)-Transpiration
(b) (ii)-Suction; (iv)-Platelets
(c) (i)-Xylem; (iv)-Leucocytes
(d) (iii) Transpiration; (iv) Plasma

3. Refer to the given figure. Identify the part which carries oxygenated blood.

- (a) P, Q, R and S (b) P and T
(c) P and S (d) R and T

4. Tanmay took a potted, well watered plant and set-up an experiment as shown in figure.



Then, he put it in the sunlight for few hours.

Which of the following options is correct regarding his observation?

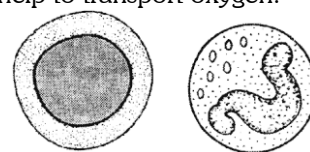
- (a) Water droplets are visible in polythene X as transpiration takes place through leaves.
(b) Water droplets are visible in polythene Y as transpiration takes place through stems.

(c) Water droplets are visible in polythene X as photosynthesis occurs in leaves.

(d) Water droplets are visible in polythene Y as photosynthesis occurs in stem.

5. The cells shown in the figure can be found in the blood. Which of the following statements is/are correct regarding these cells?

- (i) They do not have nucleus.
(ii) They help the body to fight against infections.
(iii) They help the blood to clot.
(iv) They help to transport oxygen.



- (a) (ii) only (b) (i) and (ii) only
(c) (i), (ii) and (iii) only (d) (i), (iii) and (iv) only

6. Select the incorrect match.

- (i) Ammonotelism- Sponges, Hydra, Cartilaginous fish, Leech, Crocodile
(ii) Ureotelism- Frogs, Toads, Bony fish, Turtles, Man
(iii) Uricotelism- Cockroach, Pigeon, Beetle, Lizard, Snake

- (a) (i) and (ii) only (b) (ii) and (iii) only
(c) (iii) only (d) (i), (ii) and (iii)

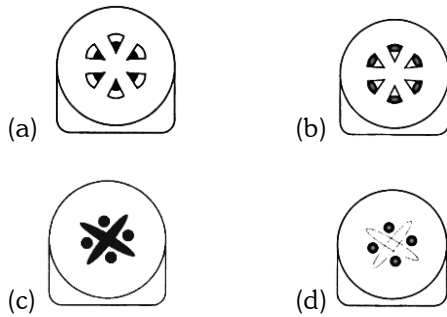
7. Pulmonary ___ carries ___ rich blood from the heart to the lungs and pulmonary ___ carries ___ rich blood from the lungs to the heart.

Select the option that correctly fills up the blank spaces in the above passage.

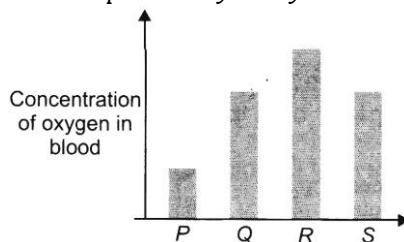
- (a) Vein, Carbon dioxide, Artery, Oxygen
(b) Vein, Oxygen, Artery, Carbon dioxide
(c) Artery, Carbon dioxide, Vein, Oxygen
(d) Artery, Oxygen, Vein, Carbon dioxide

8. Nikita took a twig of Petunia plant and dipped it in a beaker containing dissolved coloured dye safranin. She left it for 1-2 hours. Now she prepared a section of this twig and observed it under the microscope.

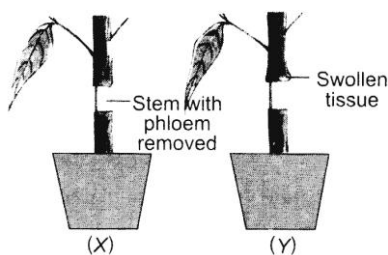
Which of the following is correctly represent the T.S of stem? (Note: The dark area is the place where the red colour is present.)



9. The given bar chart shows the concentration of oxygen in blood samples from four places in the circulatory system of a man. Which sample was taken from the pulmonary artery?



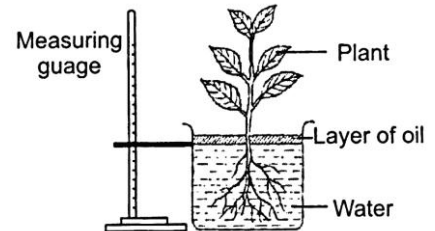
- (a) P (b) Q
(c) R (d) S
10. Read the following statements and select the correct option.
Statement 1: Doctors use the urine test to diagnose some diseases in the body.
Statement 2: An examination of urine tells a lot about whether various organs in the body are functioning normally or not.
- (a) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
 (b) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
 (c) Statement 1 is true but statement 2 is false.
 (d) Both statements 1 and 2 are false.
11. The given figure shows a setup at the start of an experiment (X) and after a few days (Y). The change observed in setup Y is due to



- (a) Upward movement of food getting blocked

- (b) Downward movement of food getting blocked
 (c) Upward movement of water getting blocked
 (d) Downward movement of water getting blocked.

12. Refer the following experimental setup prepared by a group of students.



What will happen to the water level in the beaker after a week?

- (a) Water level will go up.
 (b) Water level will go down.
 (c) Water level will remain same.
 (d) Cannot be predicted

13. Consider the following statements. Select the option which correctly identifies true (T) and false (F) ones.

- (i) The valve between left and right atrium allow the blood to flow only in one direction.
 (ii) The contents of phloem can move only in the upward direction whereas water in xylem moves both in the upward and downward directions.
 (iii) A healthy adult man excretes an; average of 1.5 litres of urine every day.
 (iv) Red blood cells are the biconcave, disc shaped structures filled with haemoglobin.

	(i)	(ii)	(iii)	(iv)
(a)	F	F	T	T
(b)	T	F	T	T
(c)	F	T	T	T
(d)	F	F	T	F

14. The part labelled X in the given diagram helps plants to ____.

- (i) take in oxygen
 (ii) take in water vapour
 (iii) Give out oxygen
 (iv) give out water vapour

- (a) (i) and (ii) only (b) (i) and (iii) only
 (c) (ii) and (iii) only (d) (i), (iii) and (iv) only

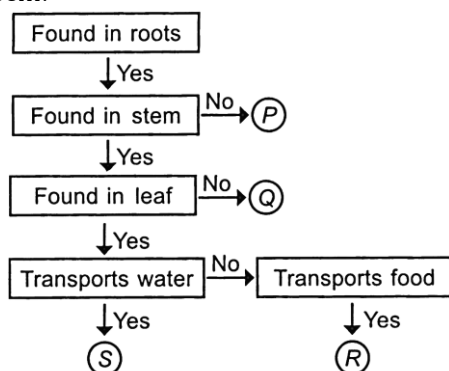
15. Select the incorrect statement.

- (a) Phloem tubes are only found in the leaves of plants as this is where the sugars are made.
 (b) Volume of blood in an average human adult is 10 litres.

- (c) Blood contains many more white blood cells than red blood cells.
(d) All of these

Achievers Section (HOTS)

16. Study the given flow chart carefully and select the option which is a correct match of xylem and phloem?



	Xylem	Phloem
(a)	P	R
(b)	R	S
(c)	S	R
(d)	Q	R

17. Read the given differences between X, Y and Z.

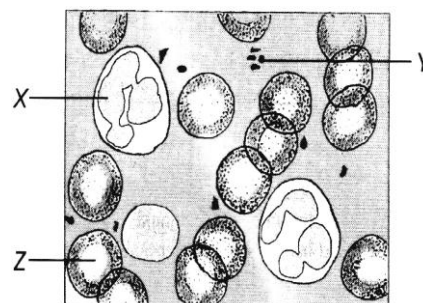
S.No	X	Y	Z
(i)	They are thin walled vessels with a small lumen,	They are thick walled vessels with narrow lumen,	They are thin walled vessels with wide lumen,
(ii)	They deliver blood to the body cells.	They carry	
(iii)	They are placed very deep.	They are situated in the deeper regions of the body.	They are superficially situated.
(iv).	They carry both oxygenated and deoxygenated blood	They carry oxygenated blood, except one.	They carry deoxygenated blood, except one.

Select the correct statement regarding X, Y and Z.

- (a) X is permeable to gases and other substances while Y and Z are impermeable.

- (b) X and Y are permeable to gases and other substances while Z is impermeable.
(c) X and Z are permeable to gases and other substances while Y is impermeable.
(d) Y is permeable to gases and other substances while X and Z are impermeable.

18. Refer to the given figures of blood cells and select the correct statements regarding X, Y and Z.

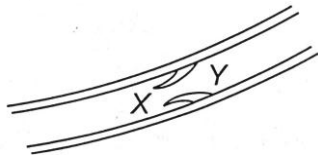


- (i) X plays a key role in transporting waste carbon dioxide from the tissues to the lungs.
(ii) The pigment present in Z absorbs oxygen and transports it to the cells all over the body.
(iii) X is able to move on their own.
(iv) Y helps the blood to clot whenever there is a wound on the body.
(v) V is important part of our immune system.
(vi) Z produces special protein substances, i.e., antibodies that protect us from infection.

- (a) (i), (ii), (iii), (iv) and (vi) only
(b) (ii), (iii) and (iv) only
(c) (iii), (iv) and (v) only
(d) (i), (ii), (iii) and (iv) only

19. Mukta conducted an experiment in which two potato tubers X and Y (of equal size) were peeled and a cavity was made in each of them. X was boiled while Y was not. The cavities in the both tubers were filled with sugar solution and they were then placed in beakers containing distilled water. Select the correct statement regarding the result of this experiment.
(a) Level of sugar solution increased in both potato tubers X and Y due to osmosis.
(b) Level of sugar solution decreased in both potato tubers X and Y due to osmosis.
(c) Level of sugar solution increased in only potato tuber X due to osmosis.
(d) Level of sugar solution increased in only potato tuber Y due to osmosis.

- 20.** Refer to the given figure of a sectional view of a blood vessel having a valve. Select the correct statement regarding it.



- (a) Blood flows from X to Y.
- (b) Muscles in the wall relax and close the valve, preventing backflow.
- (c) The elastic wall causes the valve to close between heart beats.
- (d) The valve is forced open when the blood pressure at Y is greater than at X.

Answer key

1. A	2. A	3. C	4. A	5. A
6. A	7. C	8. A	9. A	10. A
11. B	12. B	13. A	14. D	15. D
16. C	17. A	18. B	19. D	20. D

HINTS & EXPLANATIONS

1. (a): The wastes removed by the kidneys are in the form of a liquid called urine. It passes from the kidneys through ureters into the urinary bladder, where it is stored temporarily until it is excreted from the body through urinary opening located at the urethra.
2. (a): (i) Phloem, (ii) Suction or transpirational, (iii) Transpiration, (iv) White blood cells or leucocytes
3. (c): In the given figure, P, Q, R, S and T refer to aorta, right atrium, right ventricle, left ventricle and pulmonary artery respectively. Aorta and left ventricle carry oxygenated blood. Left ventricle receives oxygenated blood from left auricle which received it from pulmonary veins and this oxygenated blood then moves into the aorta to be supplied to the whole body.
4. (a): Most of the transpiration takes place through leaves which results in loss of water in the form of water vapours from the plants through stomata. Since in polythene X leaves are covered, water vapours released in the atmosphere will get collect in the polythene, and are thus, visible in the form of water drops. Polythene Y has no leaves inside it, therefore, no water droplets are visible in it.
5. (a): Given figures represent lymphocyte and basophil respectively, which are the types of leucocytes (WBCs). Leucocytes are those cells of blood whose main function is to fight against diseases by destroying harmful bacteria and other foreign materials. They possess nucleus. Clotting of blood is the function of blood platelets and transport of oxygen is the function of RBCs.
6. (a): Cartilaginous fishes are ureotelic while bony fishes are ammonotelic.
7. (c) Not Available
8. (a): Transportation of water and minerals upward through xylem. Xylem get red coloured due to transportation of safranin dissolved water through it in plants takes place.
9. (a): Pulmonary artery carries deoxygenated blood from the heart to the lungs. This means concentration of oxygen is less in the blood carried by pulmonary artery which is denoted by P.
10. (a) Not Available
11. (b): If the phloem tissue is removed from the stem of the plant, as shown in the figure, then the stem shows swelling in the upper portion due to the accumulation of food material which is being synthesised in the leaves. This happens because after removal of phloem tissue, the downward movement of food gets blocked as the phloem transports the food from leaves to other parts of the plant.
12. (b): The level of water in the beaker will go down, as the water gets absorbed by the roots and is transported to the leaves through the stem.
13. (a): There are no valves between left and right atrium. Water in xylem can move only in the upward direction whereas contents of phloem move in the upward and downward direction.
14. (d): The part labelled X in the diagram is stomata through which leaves take in carbon dioxide and give out oxygen during photosynthesis, take in oxygen during respiration and give out water vapour during transpiration.
15. (d) Not Available
16. (c) Not Available
17. (a): According to the given differences, X, Y and Z refer to capillaries, arteries and veins respectively. Capillaries are permeable to gases and other substances while arteries and veins are impermeable to gases and other substances.
18. (b): In the given figure X, Y and Z refer to white blood cell (WBC), red blood cell (RBC) and platelets respectively. Red blood cell (RBC) plays a key role in transporting waste carbon dioxide from the tissues to the lungs. White blood cells (WBCs) are important part of our immune system. White blood cells (WBCs) produce special protein substances i.e., antibodies that protect us from infection.
19. (d): In the given experiment, X has non-living cell while Y has living cell. There will be no change in the level of sugar solution in potato tuber X while sugar solution level increases in potato tuber V due to osmosis. It is because concentration of water molecules is more outside the potato than inside it, as the inside solution has sugar dissolved in water. Therefore, water moves from beaker to the potato cavity.

- 20.** (d): Blood moves from high pressure area to low pressure area. So in the diagram, the valve gets open forcefully when the blood pressure at 'Y' is greater than at 'X'.