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TRANSPORTATION IN ANIMALS AND PLANTS

Chapter: - 11

SCIENCE
CLASS: 7TH
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Chapter: 11
Transportation in Animals and Plants

Q1: 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

Ans:

Column I	*Column II*
Stomata	Transpiration
Xylem	Transport of water
Root hairs	Absorption of water
Phloem	Transport of food

Q2: 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 _salt.

(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.

Q3: Choose the correct option:

(a) In plants, water is transported through

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

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

Q4: Why is transport of materials necessary in a plant or in an animal? Explain.

Ans: Transport of materials is necessary in both plants and animals because it allows for the distribution of essential nutrients and other substances throughout the body.

In plants, transport of materials is necessary to move water and minerals from the roots to the rest of the plant, and to move sugars and other organic compounds from the leaves where they are produced to other parts of the plant.

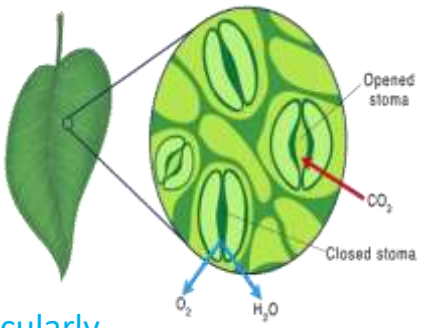
In animals, transport of materials is necessary to move nutrients, oxygen, and waste products throughout the body.

Q5: What will happen if there are no platelets in the blood?

Ans: Platelets are one of the components of blood and play a crucial role in the process of blood clotting or coagulation. If there are no platelets in the blood, the ability of the body to form blood clots would be severely compromised, which can result in a number of health problems.

Q6: What are stomata? Give two functions of stomata.

Ans: Stomata are tiny pores or openings found on the surface of leaves, stems, and other plant organs. These openings are surrounded by specialized cells called guard cells, which control the opening and closing of the stomata.



(a) Gas exchange: One of the primary functions of stomata is to facilitate the exchange of gases, particularly carbon dioxide and oxygen, between the plant and its surroundings.

(b) Water regulation: Stomata also play a critical role in regulating water loss in plants. When the plant needs to conserve water, the guard cells close the stomata, minimizing water loss through transpiration.

Q7: Does transpiration serve any useful function in the plants? Explain.

Ans: Yes, transpiration serves several useful functions in plants:

(a) Water uptake: Transpiration creates a "pull" or negative pressure that helps to draw water and minerals from the soil into the plant roots.

(b) Cooling: Transpiration also helps to cool the plant by releasing water vapor into the air.

(c) Nutrient uptake: Transpiration can help to facilitate the uptake of nutrients, such as potassium and magnesium.

(d) Transport of hormones: Some hormones, such as abscisic acid, can move through the plant's vascular system and be transported by transpiration.

Q8: What are the components of blood?

Ans: Blood is a vital bodily fluid that is composed of several different components. The main components of blood are:

a. Red blood cells (RBCs)
b. White blood cells (WBCs)
c. Platelets
d. Plasma
e. Blood proteins

Q9: Why is blood needed by all the parts of a body?

Ans: Blood is a vital component of the human body, and it is needed by all parts of the body for several reasons:

a. Oxygen transport
b. Nutrient delivery
c. Waste removal
d. Waste removal
e. Waste removal

Q10: What makes the blood look red?

Ans: The red colour of blood is due to the presence of a protein called haemoglobin, which is contained within the red blood cells or erythrocytes.

Q11: Describe the function of the heart.

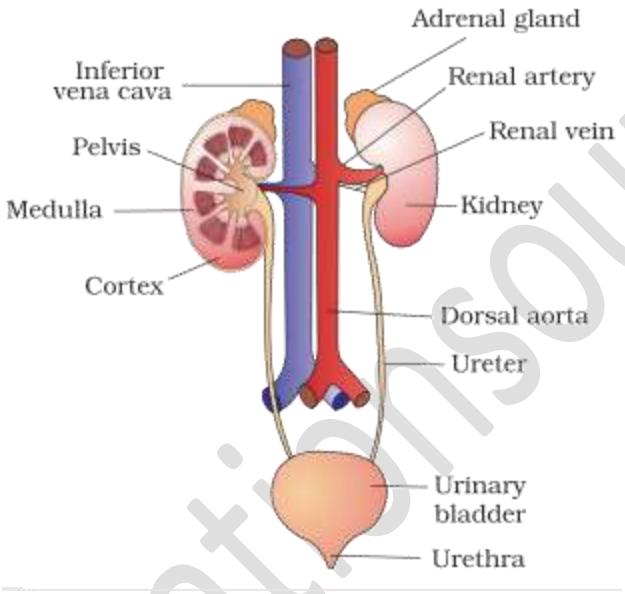
Ans: The heart is a vital organ that performs the function of pumping blood throughout the body. Its main function is to circulate blood, which is essential for the delivery of oxygen, nutrients, and hormones to all the body's tissues and organs, and the removal of waste products such as carbon dioxide.

Q12: Why is it necessary to excrete waste products?

Ans: Excreting waste products is a critical process that is necessary for maintaining the body's homeostasis and preventing the build-up of harmful substances. The body produces waste products as a result of its metabolic processes, such as the breakdown of proteins, carbohydrates, and fats. These waste products include urea, creatinine, ammonia, and uric acid, among others. If these waste products are not removed from the body, they can build up and become toxic.

Q13: Draw a diagram of the human excretory system and label the various parts.

Ans:



Key Words

1. **Ammonia: -** Ammonia is a pungent, colourless gas commonly used in industrial, agricultural, and household applications. It is highly soluble in water.

2. **Artery: -** Arteries are blood vessels that carry oxygenated blood away from the heart to various parts of the body, supplying oxygen and nutrients to tissues and organs.

3. **Blood: -** Blood is a vital bodily fluid that circulates through the arteries, veins, and capillaries, delivering oxygen, nutrients, hormones, and other essential substances to cells and tissues.

4. **Blood vessels: -** Blood vessels are the tubular structures that transport blood, oxygen, nutrients, and waste products throughout the body.

5. **Vein: -** A type of blood vessel that carries deoxygenated blood from the body's tissues back to the heart.

6. **Capillary: -** Capillaries are the smallest and thinnest blood vessels that facilitate the exchange of oxygen, nutrients, and waste products between the blood and surrounding tissues.

7. **Circulatory system: -** It is also known as the cardiovascular system, is a complex network of organs and blood vessels that transports oxygen, nutrients, hormones, and waste products throughout the body, facilitating vital functions such as oxygenation, nutrient delivery, waste removal, and immune response.

8. **Dialysis:** - It is a medical procedure that filters waste products and excess fluids from the blood when the kidneys are unable to do so.

9. **Excretion: -** Excretion is the biological process by which waste products, toxins, and excess substances are eliminated from the body.

10. **Excretory system: -** The excretory system is a collection of organs, including the kidneys, urinary bladder, ureters, urethra, lungs, skin, and intestines, responsible for eliminating waste products and regulating the body's internal environment.

11. **Haemoglobin: -** Haemoglobin is a protein in red blood cells that transports oxygen from the lungs to tissues.

12. **Heart beat: -** Heartbeat refers to the rhythmic contraction and relaxation of the heart's chambers which is essential for pumping blood and maintaining circulation throughout the body.

13. **Phloem: -** Phloem is a specialized plant tissue responsible for transporting sugars, organic molecules, and other nutrients from leaves to other parts of the plant.

14. **Xylem: -** Xylem is a specialized plant tissue that transports water, minerals, and nutrients from the roots to the rest parts of the plant.

15. **Plasma: -** Plasma refers to the liquid component of blood that contains various substances, including water, proteins, hormones and waste products.

16. **Platelets: -** Platelets are small cell fragments in the blood that play a crucial role in blood clotting and preventing excessive bleeding.

17. **Pulse: -** The throbbing movements caused by the expansion and contraction of arteries as blood is pumped by the heart.

18. **Red blood cell: -** A type of cell in the blood that carries oxygen from the lungs to the body tissues**.**

19. **White blood cell: -** White blood cells (WBC) which fight against germs that may enter our body.

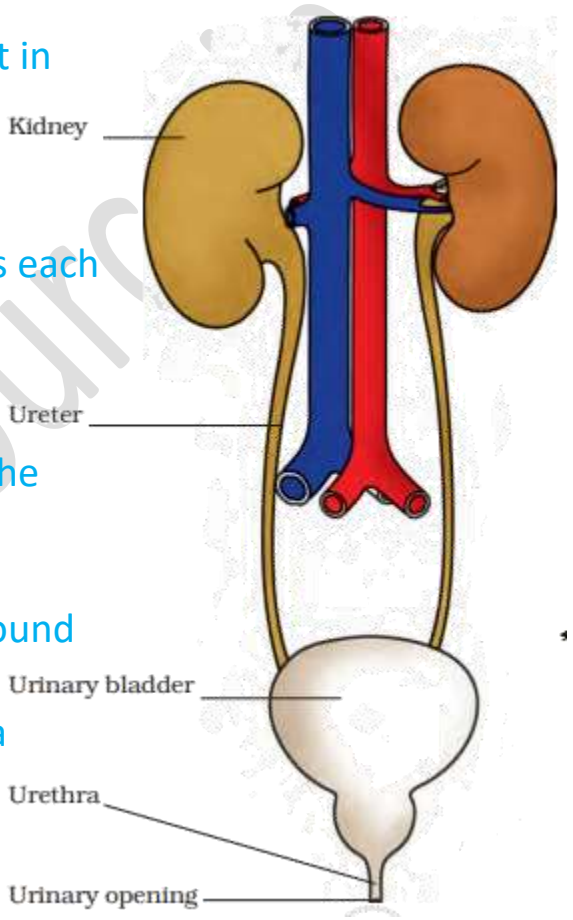
20. **Root hair: -** Tiny, thread-like extensions that grow from the roots of plants. They increase the surface area of the roots, allowing for better absorption of water and nutrients from the soil.

21. **Stethoscope: -** A medical instrument used by healthcare professionals to listen heartbeats is called a stethoscope.

22. **Sweat: -** A transparent, odourless liquid produced by the body to regulate body temperature.

23. **Tissue: -** A group or collection of similar cells that work together to perform a specific function in the body is known as tissue.

24. **Urea: -** It is the major excretory product in humans waste product that is formed in the liver during protein metabolism.



25. **Ureter:** - A muscular tube that connects each kidney to the urinary bladder.

26. **Urethra: -** A tube-like structure that carries urine from the urinary bladder to the outside of the body.

27. **Uric acid: -** It is a white coloured compound which is produced by some of land animals like birds, lizards, snakes excrete a semi-solid.

28. **Kidneys: -** The kidneys are vital organs responsible for filtering waste product from the blood and regulating fluid and electrolyte balance.

29. **Urinary bladder: -** An organ located in the lower abdomen that serves as a temporary storage reservoir for urine.