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मैथमेटिकल एकेडमी

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Mathematical Academy

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❖ ASSIGNMENT - 1

Transportation Animals & Plants -:

Q (1) : What is the vascular tissue in plants that transports water?

(a) Phloem (b) Xylem (c) Stomata (d) Guard cells

Answer : (b) Xylem

Q (2) : Which blood vessel carries oxygenated blood from the lungs to the heart?

(a) Pulmonary artery (b) Pulmonary vein

(c) Vena cava (d) Aorta

Answer : (b) Pulmonary vein

Q (3) : Which of the following is NOT a part of the circulatory system in humans?

(a) Heart (b) Blood vessels (c) Lymph (d) Stomata

Answer : (d) Stomata

Q (4) : The main function of hemoglobin is to:

(a) Carry nutrients (b) Carry oxygen

(c) Fight infections (d) Digest food

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Answer : (b) Carry oxygen

Q (5) : In plants, transpiration mainly occurs through:

(a) Roots (b) Stems (c) Stomata (d) Flowers

Answer : (c) Stomata

Q (6) : Which organ in humans filters blood to form urine?

(a) Heart (b) Lungs (c) Kidneys (d) Liver

Answer : (c) Kidneys

Q (7) : In plants, food is transported through:

(a) Xylem (b) Phloem (c) Stomata (d) Cuticle

Answer : (b) Phloem

Q (8) : Which type of blood cells help in clotting?

(a) Red blood cells (b) White blood cells

(c) Platelets (d) Plasma

Answer : (c) Platelets

Q (9) : The process of water loss from leaves is called:

(a) Osmosis (b) Photosynthesis

(c) Transpiration (d) Respiration

Answer : (c) Transpiration

Q (10) : The lower chambers of the human heart are called:

(a) Ventricles (b) Atriums (c) Septum (d) Valves

Answer : (a) Ventricles

Fill in the Blanks

Q (11) : In plants, the _____ transports water from roots to leaves.

Answer : Xylem

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Q (12) : The heart pumps oxygenated blood to the body through the _____.

Answer : Aorta

Q (13) : Transpiration helps in cooling the plant and also creates _____ pull.

Answer : Transpiration

Q (14) : In humans, blood circulation is called _____ circulation because blood passes through the heart twice.

Answer : Double

Q (15) : The process of removal of waste products from the body is called _____.

Answer : Excretion

Q (16) : The small pores on the surface of leaves are called _____.

Answer : Stomata

Q (17) : The _____ carries deoxygenated blood from the body to the heart.

Answer : Vena cava

Q (18) : The _____ is responsible for pumping blood throughout the body.

Answer : Heart

Q (19) : _____ is the process by which oxygen is carried by hemoglobin in red blood cells.

Answer : Respiration

Q (20) : Lymph is part of the _____ system in animals.

Answer : Lymphatic

True or False

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Q (21) : Xylem transports food in plants.

Answer : False

Q (22) : The heart has four chambers.

Answer : True

Q (23) : Veins carry oxygen-rich blood from the lungs to the heart.

Answer : False

Q (24) : Transpiration occurs through the stomata in plant leaves.

Answer : True

Q (25) : White blood cells help in clotting blood.

Answer : False

Q (26) : The kidneys help in filtering blood and forming urine.

Answer : True

Q (27) : The lymphatic system is responsible for transporting oxygen in animals.

Answer : False

Q (28) : Guard cells control the opening and closing of stomata.

Answer : True

Q (29) : Diffusion is the movement of gases from a higher concentration to a lower concentration.

Answer : True

Q (30) : Blood plasma is the liquid part of blood.

Answer : True

Short Answer Questions

Q (31) : What is the role of the heart in the circulatory system?

Answer : The heart pumps blood throughout the body, delivering oxygen and nutrients to cells and removing waste products.

Q (32) : How does water move from the roots to the leaves in plants?

Answer : Water moves from the roots to the leaves through the xylem, driven by root pressure, capillary action, and transpiration pull.

Q (33) : What are capillaries, and what is their function

Answer : Capillaries are tiny blood vessels that facilitate the exchange of oxygen, carbon dioxide, and nutrients between blood and tissues.

Q (34) : What is transpiration in plants

Answer : Transpiration is the process by which water vapor is lost from the aerial parts of the plant, mainly through the stomata.

Q (35) : What is the difference between arteries and veins?

Answer : Arteries carry oxygenated blood away from the heart, while veins carry deoxygenated blood back to the heart.

Q (36) : What are the two types of vascular tissues in plants, and what do they transport?

Answer : Xylem transports water and minerals, while phloem transports food (sugars).

Q (37) : Why is the circulatory system important for the human body?

Answer : The circulatory system is essential for transporting oxygen, nutrients, and waste products throughout the body, ensuring cells function properly.

Q (38) : What is the role of stomata in plants?

Answer : Stomata are responsible for gas exchange (intake of carbon dioxide and release of oxygen) and transpiration.

Q (39) : How does blood help in regulating body temperature?

Answer : Blood distributes heat throughout the body, helping to maintain a stable internal temperature.

Q (40) : What is the function of platelets in the blood?

Answer : Platelets help in blood clotting, which prevents excessive bleeding when injuries occur.

Long Answer Questions

Q (41) : Explain the process of transportation in plants with reference to xylem and phloem.

Answer : In plants, transportation of water and minerals from the roots to the leaves occurs through the xylem. This process is driven by root pressure, capillary action, and transpiration pull. The phloem, on the other hand, transports food (sugars) produced during photosynthesis from the leaves to other parts of the plant, including the roots. This movement of food is called translocation.

Q (42) : Describe the structure of the human heart and its role in blood circulation.

Answer : The human heart has four chambers: two atria and two ventricles. The right atrium receives deoxygenated blood from the body, which is pumped to the right ventricle and then to the lungs for oxygenation. Oxygen-rich blood returns to the left atrium, is pumped into the left ventricle, and is then distributed to the rest of the body through the aorta. The heart ensures continuous circulation of blood to provide oxygen and nutrients to cells and remove waste products.

Q (43) : What is double circulation, and why is it important in humans?

Answer : Double circulation refers to the fact that blood passes through the heart twice in a single circuit – once to get

oxygenated in the lungs (pulmonary circulation) and once to supply oxygen to the body (systemic circulation). This separation ensures efficient oxygenation of blood and effective distribution of oxygen and nutrients to body tissues.

Q (44) : What are the components of blood, and what are their functions?

Answer : Blood has four main components: plasma (the liquid part that carries nutrients, hormones, and waste), red blood cells (which carry oxygen), white blood cells (which fight infections), and platelets (which help in clotting). Together, these components play a crucial role in transportation, immune response, and maintaining overall health.

Q (45) : Explain the importance of transpiration in plants.

Answer : Transpiration is the process by which water is lost from the plant's leaves through stomata. It is essential for water movement from roots to leaves, helps in cooling the plant, and enables the absorption of minerals from the soil. The process creates a transpiration pull that assists in transporting water and nutrients upwards through the xylem.

Q (46) : How is waste excreted in animals? Explain with examples.

Answer : In animals, waste is excreted through various organs. In humans, kidneys filter blood to form urine, which contains urea and other waste products. Lungs expel carbon dioxide and water vapor, while the skin releases salts and urea through sweat. This removal of waste is vital to maintaining a healthy internal environment.

Q (47) : Compare and contrast transportation in plants and animals.

Answer : In plants, transportation occurs through xylem (for water) and phloem (for food), relying on processes like transpiration and root pressure. In animals, the circulatory

system transports oxygen, nutrients, and waste through blood, with the heart playing a central role. While plants depend on passive mechanisms, animals use an active pump (the heart) for circulation.

Q (48) : Explain how stomata function in the process of transpiration and gas exchange.

Answer : Stomata are small openings on the surface of leaves, controlled by guard cells. During transpiration, water vapor exits the plant through these stomata. They also facilitate gas exchange, allowing carbon dioxide to enter the leaf for photosynthesis and oxygen to exit as a byproduct. Guard cells regulate the opening and closing of stomata to balance water loss and gas exchange.

Q (49) : Describe the human excretory system and its function.

Answer : The human excretory system consists of the kidneys, ureters, bladder, and urethra. The kidneys filter waste products and excess water from the blood to form urine. The ureters transport urine to the bladder, where it is stored until excretion through the urethra. This system helps maintain the body's fluid balance and removes toxic substances from the bloodstream.

Q (50) : How do guard cells control the opening and closing of stomata?

Answer : Guard cells control the opening and closing of stomata by changing shape in response to water pressure. When they absorb water, they swell and curve, opening the stomatal pore. When they lose water, they shrink and close the pore. This mechanism helps regulate water loss and gas exchange based on the plant's needs and environmental conditions.