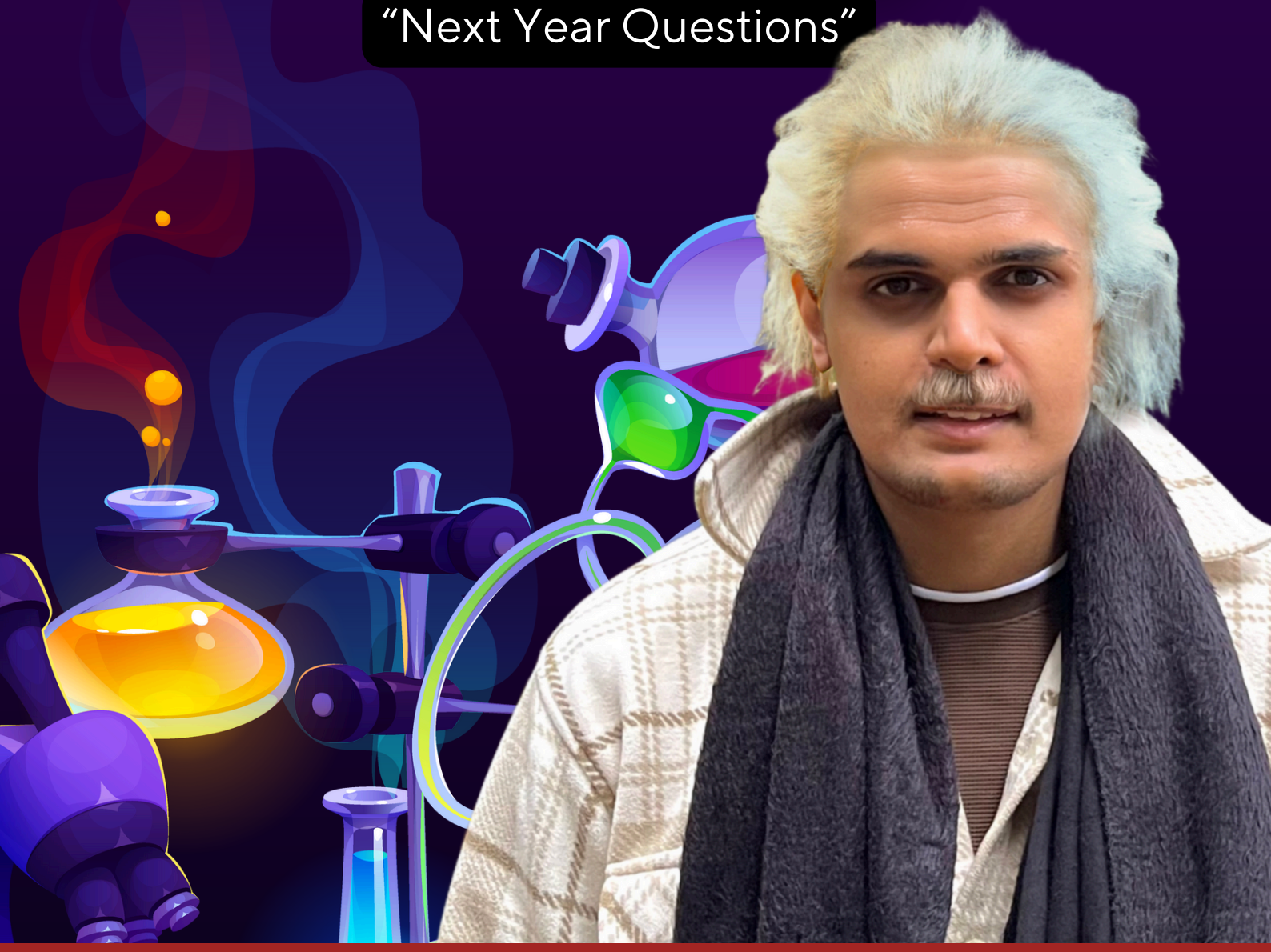
Next Toppers

Class X

अभय

NYQs

"Next Year Questions"



Life Processes

PRASHANT KIRAD

Life Processes

Q1. Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva?
(a) Starch breaking down into sugars.
(b) Proteins breaking down into amino acids.
(c) Absorption of vitamins.
(d) Fats breaking down into fatty acids and glycerol.

Q2. What are the products obtained by anaerobic respiration in plants?
(a) Lactic acid + Energy
(b) Carbon dioxide + Water + Energy
(c) Ethanol + Carbon dioxide + Energy
(d) Pyruvate

Q3. A blood vessel which pumps the blood from the heart to the entire body:
(a) artery
(b) capillary
(c) Vein
(d) Hemoglobin

Q4. Which part of nephron allows the selective reabsorption of useful substances like glucose, amino acids, salts and water into the blood capillaries?
(a) Tubule
(b) Glomerulus
(c) Bowman's capsule
(d) Ureter

Q5. The characteristic processes observed in anaerobic respiration are:
i) Presence of oxygen
ii) Release of carbon dioxide
iii) Release of energy
iv) Release of lactic acid
(a) i), ii) only
(b) i), ii), iii) only
(c) ii), iii), iv) only
(d) iv) only

Q6. (a) State the role played by the following in the process of digestion :
(i) Enzyme trypsin
(ii) Enzyme lipase
(b) List two functions of finger-like projections present in the small intestine

Q7. What do the following transport?
(i) Xylem
(ii) Phloem
(iii) Pulmonary vein
(iv) Vena cava
(v) Pulmonary artery
(vi) Aorta

Q8. (a) "Blood circulation in fishes is different from the blood circulation in human beings". Justify the statement.
(b) Describe "blood circulation" in human beings.

Q9. Describe the structure and function of nephron with the help of diagram.

Q10. What will happen if mucus is not secreted by the gastric glands?

Q11. How is opening and closing of stomata regulated?

Q12. Lungs always contain a residual volume of air, give reason.

Q13. The diaphragm flattens and ribs are lifted up when we breathe in, give reason.

Q14. Describe in brief how urine is produced in human body.

Q15. (a)Explain why plants have low energy needs as compared to animals
(b) Draw a flow chart to show the breakdown of glucose by various pathways

SOLUTION

Ans1. A

Ans 2. C

Ans 3. A

Ans 4. A

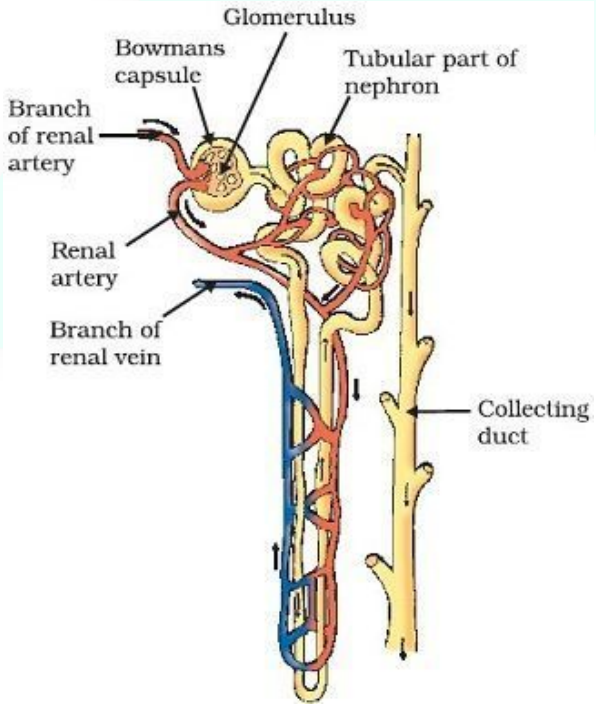
Ans 5. C

Ans6. (a) (i) Enzyme trypsin : This enzyme is produced by the pancreas in an inactive form called trypsinogen. Trypsin converts remaining proteins into peptones and the peptones into peptides and amino acids.
(ii) Enzyme lipase : It is secreted by pancreas and small intestine. Lipase converts fats into fatty acids and glycerol.
(b) Internally, the wall of the small intestine is provided with long finger-like projections called villi. Two functions of villi are :
(i) The villi greatly increase the absorptive surface area of the inner lining of small intestine. [5]
(ii) The large surface area of small intestine helps in rapid absorption of digested food.

Ans7. (i) Xylem is a specialised plant conducting tissue that transports water and minerals from roots to all aerial parts of plants which occurs against gravitational force with the help of ascent of sap.
(ii) Phloem transports food that is prepared in the leaves, through photosynthesis, to various parts of plant. This process is called translocation. Phloem also transports amino acids, hormones synthesised in the shoot tips and root tips and other metabolites.
(iii) Pulmonary vein present in human circulatory system brings oxygenated blood from lungs to the left atrium of heart.
(iv) Vena cava transport deoxygenated blood collected by all veins of body except pulmonary vein and pass it to the right atrium of heart.
(v) Pulmonary artery transports deoxygenated blood from right atrium of heart to lungs for oxygenation.
(vi) Aorta transports oxygenated blood from left atrium to systemic arteries which further take the blood to various body parts and organs.

Ans8. (a) Fishes have only two chambers in their heart, the blood is pumped to the gills to get oxygenated blood and from there it passes directly to rest of the body. Thus, the blood goes only once through the heart during one cycle of passage through the body. This type of circulation is termed as single circulation.
In human beings, during circulation blood travels twice through the heart in one complete cycle of the body and is called double circulation. The pathway of blood from the heart to the lungs and back to the heart is called pulmonary circulation and the pathway of blood from the heart to the rest of the body and back to heart is called systemic circulation.
(b) Deoxygenated blood from the body tissues is poured into right atrium. Contraction of heart forces it into right ventricle. From right ventricle, deoxygenated blood flows to the lungs through pulmonary artery. Oxygenated blood from lungs is returned into left atrium and then into left ventricle. The left ventricle forces the oxygenated blood to the whole body. Thus, for making one complete round or circulation circuit around all body parts, the blood passes through the heart twice. This is known as double circulation of blood.

Ans9. The function of nephron is filtration of blood and elimination of waste material from it. Blood is filtered from the blood capillaries into Bowmans capsule and pour the filtrate into the renal tubule. In this part, large amount of water and useful substances like glucose, amino acid, minerals ions, etc., are reabsorbed. Nitrogenous waste along with little amount of water is sent to the urinary bladder, which later expels the urine to the outside through urethra.



Ans 10. Gastric glands secrete HCl, mucus, rennin and pepsin enzymes. Mucus protects the inner lining of stomach from the action of HCl and enzymes. In the absence of mucus, there would be erosion of inner lining of stomach leading to acidity and ulcers.

Ans11. Guard cells control the closure and opening of the stomata. The stomata open when the guard cells enlarge or become turgid owing to water ingress. Because of the loss of water, the guard cells shrink and the stomata close.

Ans12. Lungs always contain a residual volume of air to ensure that there is continuous and efficient gas exchange, even between breaths, and to prevent the collapse of the alveoli.

Ans13. When we inhale, the diaphragm contracts and flattens, and the ribs lift upwards and outwards. This increases the volume of the thoracic cavity and reduces the pressure inside the lungs compared to the outside atmosphere, causing air to flow into the lungs.

Ans14. In the kidney, the wastes are converted to urine by three processes :
(i) Ultrafiltration : In it, large amount of water along with certain harmful substances like urea, uric acid, K+, ammonium salts, creatinine, etc., and certain useful substances like glucose, amino acids, Na+, etc., pass through glomerular capillaries and glomerular membrane into cavity of Bowman's capsule of nephrons under pressure. The filtrate so formed is called nephric filtrate which is moved towards ureter.

(ii) Selective reabsorption : In it, large amount of water and sodium, whole of glucose and amino acids and small amount of urea are passed back from nephric filtrate into blood capillaries. It occurs either by back diffusion (i.e., water and urea) or active transport (i.e., Na+, glucose and amino acids). It generally occurs in PCT (Proximal convoluted tubule) of nephrons.

(iii) Tubular secretion : In this, certain harmful chemicals like uric acid, creatinine, K+, etc., are passed from blood capillaries surrounding the nephron into nephric filtrate by active transport. It generally occurs in DCT (Distal convoluted tubule) of nephrons. Now, the fluid is termed as urine and is excreted out of the excretory organs.

Ans15. (a) Plants are autotrophic and do not have to move from one place to another in search of their food. Movements in a plant are usually at the cellular level and hence they required less amount of energy. Whereas animals are heterotrophic and locomote in search of food and other activities, hence require higher amount of energy than of plants.
(b) breakdown of glucose by various pathways