

Life Processes Practice Paper 3 QnA

1. **A leaf is boiled in alcohol before using iodine for the starch test to:**

- a) Make it react with the iodine
- b) Dissolve starch
- c) Dissolve chlorophyll**
- d) Soften the leaf

2. **To prepare a good temporary mount of the petunia leaf peel showing many stomata, the student has to get the peel from the**

- a) lower surface of the leaf**
- b) upper surface of the leaf
- c) tip of the leaf
- d) point of attachment between leaf and petiole

3. **During respiration the exchange of gases takes place in**

- a) alveoli of lungs**
- b) throat and larynx
- c) alveoli and throat
- d) trachea and larynx

4. **Gaseous exchange in woody plants takes place through**

- a) Epidermal cells
- b) Stem hair
- c) Lenticels**
- d) Root hair

5. **Which of the following medicines is used for treating indigestion?**

- a) Antacid**
- b) Antiseptic
- c) Antibiotics
- d) Analgesic

6. **What is lymph?**

Lymph is the plasma and formed elements that have leaked from the capillaries into the extracellular environment. It carries food and wastes to the body cells outside the circulatory system. Lymph is formed from the fluid that leaks from blood capillaries and goes to the intercellular spaces in the tissues. This fluid is collected through lymph vessels and returns to the blood capillaries. Lymph also plays an important role in the immune system.

7. Mention the steps of respiration in higher animals.

- i) Breathing
- ii) Exchange of gases
- iii) Cell respiration

8. How would the digestion of proteins and carbohydrates be affected if, in the duodenum of humans, there is a blockage in the pancreatic duct?

The duodenum is the region where the pancreatic juice from the pancreas enters. The enzymes pancreatic amylase and trypsin help digest carbohydrates and proteins. Thus, if there is a blockage, the digestion of carbohydrates and proteins is affected.

9. i. Why is nutrition a necessity for an organism? State three reasons.

ii. What is likely to happen if green plants disappear from Earth?

Answer:

- i. Nutrition is necessary because
 - a. it helps in the growth of new cells, survival, and maintenance of cells.
 - b. it is needed to develop resistance against diseases.
 - c. it provides energy by the oxidation of food for metabolic processes.

ii. The disappearance of green plants from Earth would mean a total disaster for the ecosystem. It will reduce the oxygen concentration so low that it would be insufficient for all living organisms to breathe. Green plants are the source of energy for all organisms. All other organisms directly or indirectly depend on them for food. So, if they disappear from the Earth, all the herbivores will die due to starvation and so will the carnivores. It would result in the extinction of life from the earth.

10. i. Name all the parts in a sequence through which air from outside reaches the lungs.

ii. What is the structural and functional unit of the lungs?

iii. Explain its significance.

Answer:

- i. Nostrils, nasal cavity, pharynx, larynx, trachea, bronchi, bronchioles, and alveoli.
- ii. Alveoli are the structural and functional unit of the lungs.
- iii. They are the site of the exchange of gases between blood capillaries and lungs i.e., oxygen is taken in and carbon dioxide is given out.

11. Explain the process of urine formation in kidneys.

Answer:

Urine is formed in the nephron of the kidneys. The nephron is the structural and functional unit of the kidney. Blood at high pressure travels into these tubules by the tuft of blood capillaries called glomerulus contained in Bowman's capsule.

The following steps are involved in the process:

- i. Filtration: Blood enters the glomerulus through the afferent arterioles. It passes under high pressure that results in the filtration of blood. Water and small molecules are forced out of glomerular capillary walls and Bowman's capsule. Large molecules remain in the blood of the glomerulus.

ii. Selective reabsorption: Some molecules are selectively reabsorbed into the blood. The glomerular filtrate flows through the proximal convoluted tubule, the U-shaped Henle's loop, and the distal convoluted tubule. The useful substances such as glucose, amino acids, and salts that require energy are reabsorbed by selective reabsorption. Hence, the filtrate now contains urea, some salts, and water. Reabsorption of solutes increases the water concentration of the filtrate. Water is then reabsorbed into the blood by osmosis.

iii. Tubular secretion: Some nitrogenous waste products like creatinine and some other substances like K^+ are removed from the blood by DCT (Distal Convoluted Tubule) and are passed to the blood. The urine thus formed is collected in the urinary bladder.

12. (a) Mention any two components of blood.

(b) Write the function of valves between atria and ventricles.

(c) Write one structural difference between the composition of arteries and veins.

Answer:

- a. Plasma, red blood cells, white blood cells, platelets (any two)
- b. Prevent backflow of blood
- c. Arteries have thick elastic walls and veins have thin walls. There are valves present in the veins but not in the arteries.

13. (i) Name the energy currency in the living organisms. When and where is it produced?

(ii) How does the rate of breathing change during vigorous exercise and why?

Answer:

- (i) Adenosine triphosphate (ATP) is the energy currency in living organisms. It is produced in the mitochondria during respiration in living organisms and also during photosynthesis in plants.
- (ii) During vigorous exercise, our body requires more energy and for this purpose, more oxygen is needed, so the rate of breathing is increased. Oxygen intake rate increases by about 20 to 25 times.

