

Life Processes Quiz

1. What regulates the opening and closing of stomatal pores in plants?

- A. The turgor pressure of guard cells
- B. The amount of carbon dioxide in the air
- C. The intensity of sunlight
- D. The length of the plant's roots

Answer: A

AI Analyzing: The turgor pressure of guard cells regulates the stomata; they open when the guard cells are turgid due to water absorption and close when they are flaccid.

2. Why do herbivores like cows have a longer small intestine compared to carnivores like tigers?

- A. To store more water for a longer period
- B. To facilitate the difficult digestion of cellulose
- C. To allow more space for protein absorption
- D. Because meat is harder to digest than grass

Answer: B

AI Analyzing: Herbivores have longer small intestines because cellulose (found in plants) takes a longer time to digest, whereas meat is easily digestible.

3. What would happen if mucus was not secreted by the gastric glands in the stomach?

- A. Proteins would not be digested at all
- B. The inner lining of the stomach would be damaged by HCl
- C. The stomach medium would become alkaline
- D. Food would move too quickly into the small intestine

Answer: B

AI Analyzing: Mucus protects the inner lining of the stomach from the corrosive action of Hydrochloric Acid (HCl); without it, ulcers and acidity occur.

4. A patient had their gall bladder removed. Which type of diet should they ideally follow?

- A. A diet free from fats

- **B.** A diet high in protein
- **C.** A diet rich in cellulose
- **D.** A diet low in carbohydrates

Answer: A

AI Analyzing: The gall bladder stores bile which helps in the emulsification and digestion of fats. Without it, fat digestion becomes difficult.

5. How many ATP molecules are typically released during aerobic respiration compared to anaerobic respiration?

- **A.** 38 ATP in aerobic, 2 ATP in anaerobic
- **B.** 2 ATP in aerobic, 38 ATP in anaerobic
- **C.** Both produce 38 ATP
- **D.** Both produce 2 ATP

Answer: A

AI Analyzing: Aerobic respiration releases a large amount of energy (38 ATP), while anaerobic respiration releases a relatively small amount (2 ATP).

6. Why is a respiratory pigment like hemoglobin necessary in large multicellular organisms like humans?

- **A.** To help in the digestion of carbohydrates
- **B.** To maintain the blood pressure in arteries
- **C.** To filter nitrogenous waste from the cells
- **D.** Because diffusion alone cannot deliver oxygen to all tissues

Answer: D

AI Analyzing: Due to large body size, diffusion pressure is insufficient to deliver oxygen to all parts; hemoglobin efficiently binds and carries oxygen.

7. Which component of the human transport system is responsible for the clotting of blood at the site of injury?

- **A.** Red Blood Cells (RBCs)
- **B.** White Blood Cells (WBCs)
- **C.** Lymph
- **D.** Platelets

Answer: D

AI Analyzing: Platelets circulate in the blood and help in the clotting of blood at the site of an injury to prevent excessive blood loss.

8. Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?

- A. To allow for faster digestion of food
- B. To ensure efficient energy supply to maintain body temperature
- C. To increase the pressure in the veins
- D. To prevent the liver from becoming overworked

Answer: B

AI Analyzing: Mammals and birds are warm-blooded and need constant energy to maintain body temperature; separating blood makes the circulatory system more efficient.

9. In the human excretory system, what is the basic filtration unit of the kidney?

- A. Alveoli
- B. Ureter
- C. Nephron
- D. Glomerulus

Answer: C

AI Analyzing: The nephron is the structural and functional filtration unit of the kidney responsible for forming urine.

10. What are the primary raw materials used by plants during the process of photosynthesis?

- A. Oxygen and Sugar
- B. Carbon dioxide, water, and sunlight
- C. Nitrogen and Phosphorus
- D. Oxygen and Carbon dioxide

Answer: B

AI Analyzing: Photosynthesis requires carbon dioxide, water, and chlorophyll in the presence of sunlight to produce food (glucose) and oxygen.

11. What happens to the pyruvate during anaerobic respiration in yeast cells?

- A. It is converted into lactic acid
- B. It remains as glucose
- C. It is converted into water and oxygen
- D. It is converted into ethanol and carbon dioxide

Answer: D

AI Analyzing: In yeast, anaerobic respiration (fermentation) breaks down pyruvate into ethanol and CO₂ with a release of energy.

12. Which tissue in plants is responsible for the transport of water and minerals from the roots upwards?

- A. Phloem
- B. Xylem
- C. Stomata
- D. Chloroplast

Answer: B

AI Analyzing: Xylem is the vascular tissue responsible for the upward conduction of water and minerals from the soil to the rest of the plant.

13. Where does the complete digestion of carbohydrates, proteins, and fats occur in the human body?

- A. Stomach
- B. Large Intestine
- C. Mouth
- D. Small Intestine

Answer: D

AI Analyzing: The small intestine is the site for complete digestion of all food components, receiving secretions from the liver and pancreas.

14. What is the specific function of lymph in the human transportation system?

- A. Transporting oxygen to the brain
- B. Carrying digested and absorbed fats from the small intestine
- C. Filtering carbon dioxide from the blood
- D. Pumping blood to the lungs

Answer: B

AI Analyzing: Lymph carries digested and absorbed fats from the small intestine and drains excess fluid from extracellular space back into the blood.

15. What happens to useful substances like glucose and amino acids that enter the nephron tubule?

- **A.** They are selectively reabsorbed into the blood capillaries
- **B.** They are converted into urea
- **C.** They are excreted as part of urine
- **D.** They are broken down into carbon dioxide

Answer: A

AI Analyzing: Useful molecules like glucose, amino acids, and some salts are selectively reabsorbed by the tubule as the filtrate moves through the nephron.