

Advanced Human Physiology and Pathology

Advanced Biology · Answer Key · 10 Questions

1. Which specific cell type in the islets of Langerhans is responsible for the secretion of somatostatin?

- A) Alpha cells
- B) Beta cells
- C) Delta cells**
- D) F cells

2. In the human nephron, which segment is responsible for the greatest percentage of obligatory water reabsorption?

- A) Proximal convoluted tubule**
- B) Loop of Henle
- C) Distal convoluted tubule
- D) Collecting duct

3. What is the primary physiological function of the enzyme aminopeptidase located on the brush border of the small intestine?

- A) Hydrolysis of emulsified fats
- B) Cleavage of amino acids from the N-terminus of peptides**
- C) Dephosphorylation of nucleotides
- D) Activation of trypsinogen

4. During the cardiac cycle, which heart sound is associated with the rapid filling of the ventricles and is often pathological in adults?

- A) S1
- B) S2
- C) S3**
- D) S4

5. Which immunoglobulin isotype is most abundant in human colostrum and provides passive immunity to the neonate?

- A) IgG
- B) IgA**
- C) IgM
- D) IgE

6. The conversion of angiotensin I to angiotensin II primarily occurs in the vascular endothelium of which organ?

- A) Kidneys
- B) Liver
- C) Lungs**
- D) Adrenal cortex

7. Which mineral is a required cofactor for the enzyme carbonic anhydrase to catalyze the reaction between carbon dioxide and water?

- A) Magnesium
- B) Zinc**
- C) Iron
- D) Copper

8. What is the primary stimulus for the release of erythropoietin by the peritubular interstitial cells of the kidney?

- A) Hypercapnia
- B) Hypoxia**
- C) Hyperkalemia
- D) Hypervolemia

9. Which cranial nerve is responsible for the sensory innervation of the posterior one-third of the tongue?

- A) Facial nerve
- B) Trigeminal nerve
- C) Glossopharyngeal nerve**
- D) Hypoglossal nerve

10. In the context of bone remodeling, which cells are derived from the monocyte-macrophage lineage and are responsible for bone resorption?

- A) Osteoblasts
- B) Osteocytes
- C) Osteoclasts**
- D) Chondrocytes