

Advanced Human Biology and Health

Human Biology · Answer Key · 15 Questions

1. Which hormone is primarily responsible for the regulation of blood calcium levels by stimulating osteoclast activity?

- A) Calcitonin
- B) Parathyroid hormone**
- C) Thyroxine
- D) Aldosterone

2. What is the primary function of the proximal convoluted tubule in the human nephron?

- A) Reabsorption of water and solutes**
- B) Filtration of blood cells
- C) Active secretion of urea
- D) Concentration of urine

3. Which part of the brain is the primary integration center for the autonomic nervous system and homeostatic regulation?

- A) Cerebellum
- B) Thalamus
- C) Hypothalamus**
- D) Medulla oblongata

4. In the human cardiac cycle, what is the event that corresponds to the closing of the atrioventricular valves?

- A) Ventricular systole**
- B) Atrial diastole
- C) Ventricular diastole
- D) Isovolumetric relaxation

5. Which immunoglobulin is the most abundant in the human circulatory system, accounting for approximately 80% of total antibodies?

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

6. What is the specific role of surfactant produced by type II alveolar cells?

- A) To filter dust particles
- B) To reduce surface tension in alveoli**
- C) To increase CO₂ diffusion
- D) To produce mucus

7. Which protein is the most abundant in the human body, providing structural support to skin, tendons, and ligaments?

- A) Keratin
- B) Myosin
- C) Collagen**
- D) Actin

8. Where does the chemical digestion of disaccharides such as lactose and sucrose primarily occur?

- A) Stomach
- B) Esophagus
- C) Small intestine brush border**
- D) Large intestine

9. What is the effect of an increase in blood carbon dioxide levels on the pH of cerebrospinal fluid?

- A) Increases pH
- B) Decreases pH**
- C) Has no effect
- D) Neutralizes pH

10. Which cell type in the islets of Langerhans is responsible for the secretion of glucagon?

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

11. What is the primary site of hematopoiesis in a healthy adult human?

- A) Liver
- B) Spleen
- C) Yellow bone marrow
- D) Red bone marrow**

12. Which cranial nerve is responsible for the parasympathetic innervation of the heart, lungs, and digestive tract?

A) Trigeminal nerve

B) Vagus nerve

C) Glossopharyngeal nerve

D) Facial nerve

13. What is the structural unit of compact bone, consisting of concentric layers of calcified matrix?

A) Trabeculae

B) Lacunae

C) Osteons

D) Canaliculi

14. Which fat-soluble vitamin is essential for the synthesis of clotting factors II, VII, IX, and X in the liver?

A) Vitamin A

B) Vitamin D

C) Vitamin E

D) Vitamin K

15. What occurs during the depolarization phase of an action potential in a neuron?

A) Potassium ions exit the cell

B) Sodium ions enter the cell

C) Chloride ions enter the cell

D) Calcium ions exit the cell