

Advanced Human Physiology and Health

Biology · Practice Test · 25 Questions

1. Which specific hormone is primarily responsible for the stimulation of osteoclasts, thereby increasing blood calcium levels?

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

2. The loop of Henle in the nephron is essential for concentrating urine; which process occurs in the descending limb?

- A) Active transport of sodium
- B) Passive reabsorption of water
- C) Secretion of potassium
- D) Active reabsorption of urea

3. Which immunoglobulin is the only one capable of crossing the human placenta to provide passive immunity to the fetus?

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

4. During the cardiac cycle, the 'lub' sound corresponds to which specific mechanical event?

- A) Closure of the semilunar valves
- B) Opening of the tricuspid valve
- C) Closure of the atrioventricular valves
- D) Contraction of the atria

5. Which cell type in the gastric glands of the stomach secretes intrinsic factor, necessary for vitamin B12 absorption?

- A) Chief cells
- B) Parietal cells
- C) G-cells
- D) Mucous cells

6. What is the primary function of the Kupffer cells found within the liver sinusoids?

- A) Bile production
- B) Phagocytosis of pathogens and debris
- C) Glycogen storage
- D) Lipid metabolism

7. In human genetics, which term describes an individual who possesses two different alleles at a specific locus on homologous chromosomes?

- A) Homozygous
- B) Hemizygous
- C) Heterozygous
- D) Polygenic

8. Which cranial nerve is primarily responsible for providing parasympathetic innervation to the thoracic and abdominal viscera?

- A) Trigeminal nerve
- B) Glossopharyngeal nerve
- C) Vagus nerve
- D) Accessory nerve

9. The Hering-Breuer reflex is a mechanism that prevents what physiological outcome?

- A) Over-inflation of the lungs
- B) Hypocapnia
- C) Cardiac arrhythmia
- D) Muscle fatigue

10. Which portion of the brain is the primary integration center for the endocrine and autonomic nervous systems?

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

11. What is the physiological result of a mutation in the CFTR gene, characteristic of cystic fibrosis?

- A) Excessive potassium secretion
- B) Defective chloride ion transport
- C) Impaired glucose metabolism
- D) Overproduction of hemoglobin

12. Which mineral is a required cofactor for the enzyme carbonic anhydrase, essential for CO₂ transport in red blood cells?

- A) Zinc
- B) Magnesium
- C) Iron
- D) Calcium

13. Which layer of the skin contains the melanocytes responsible for producing melanin?

- A) Stratum corneum
- B) Stratum granulosum
- C) Stratum basale
- D) Dermis

14. The Bohr effect describes the rightward shift of the hemoglobin-oxygen dissociation curve in response to which change?

- A) Increased pH
- B) Decreased temperature
- C) Increased partial pressure of CO₂
- D) Decreased 2,3-BPG

15. Which protein is the most abundant in the human body, providing structural integrity to connective tissues?

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

16. What type of joint allows for the greatest range of motion in the human skeleton?

- A) Hinge joint
- B) Ball-and-socket joint
- C) Pivot joint
- D) Saddle joint

17. The conversion of fibrinogen to fibrin during blood coagulation is catalyzed by which enzyme?

- A) Plasmin
- B) Prothrombin
- C) Thrombin
- D) Heparin

18. Which specific region of the small intestine is the primary site for the absorption of iron?

- A) Duodenum
- B) Jejunum
- C) Ileum
- D) Cecum

19. What is the primary metabolic waste product excreted by the kidneys that originates from the breakdown of proteins?

- A) Uric acid
- B) Ammonia
- C) Creatinine
- D) Urea

20. Which vitamin is synthesized by commensal bacteria in the large intestine and is crucial for blood clotting factor synthesis?

- A) Vitamin K
- B) Vitamin D
- C) Vitamin B12
- D) Vitamin C

21. What is the name of the fluid-filled cavity within a secondary (Graafian) follicle?

- A) Zona pellucida
- B) Antrum
- C) Theca externa
- D) Corona radiata

22. Which cell type in the human immune system is responsible for the production of antibodies?

- A) T-helper cells
- B) Cytotoxic T cells
- C) Plasma cells
- D) Natural killer cells

23. The 'all-or-none' law refers to the electrical activity of which type of cells?

- A) Epithelial cells
- B) Neurons
- C) Adipose cells
- D) Fibroblasts

24. Which hormone, produced by the adrenal cortex, is essential for maintaining blood glucose levels during prolonged fasting?

- A) Epinephrine
- B) Aldosterone
- C) Cortisol
- D) Testosterone

25. What is the primary stimulus for the release of erythropoietin by the kidneys?

- A) Hypercapnia
- B) Hypoxia
- C) Hyperkalemia
- D) Hypertension