

Advanced Human Biology Challenge

Human Biology · Practice Test · 25 Questions

1. Which specific region of the brain is primarily responsible for the regulation of the body's circadian rhythms?

- A) Hippocampus
- B) Suprachiasmatic nucleus
- C) Amygdala
- D) Medulla oblongata

2. During cellular respiration, what is the primary role of the electron transport chain?

- A) To produce glucose
- B) To create a proton gradient to drive ATP synthesis
- C) To break down proteins into amino acids
- D) To release oxygen into the bloodstream

3. Which hormone is secreted by the alpha cells of the pancreatic islets of Langerhans?

- A) Insulin
- B) Somatostatin
- C) Glucagon
- D) Gastrin

4. What is the functional unit of the human kidney responsible for the filtration of blood?

- A) Nephron
- B) Alveolus
- C) Glomerulus
- D) Ureter

5. Which type of leukocyte is most abundant in a healthy human body?

- A) Eosinophil
- B) Basophil
- C) Neutrophil
- D) Monocyte

6. In protein synthesis, which molecule carries the genetic code from the DNA to the ribosome?

- A) tRNA
- B) rRNA
- C) mRNA
- D) siRNA

7. Which cranial nerve is responsible for the movement of the muscles involved in facial expression?

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

8. What is the primary function of the surfactant produced by Type II alveolar cells in the lungs?

- A) To kill bacteria
- B) To reduce surface tension and prevent alveolar collapse
- C) To increase oxygen binding to hemoglobin
- D) To stimulate the diaphragm

9. Which structure in the inner ear is responsible for converting mechanical vibrations into nerve impulses?

- A) Semicircular canals
- B) Stapes
- C) Organ of Corti
- D) Eustachian tube

10. What is the specific name for the process by which white blood cells engulf and destroy pathogens?

- A) Pinocytosis
- B) Exocytosis
- C) Phagocytosis
- D) Osmosis

11. Which layer of the skin contains the melanocytes responsible for pigment production?

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

12. In the human cardiac cycle, which valve prevents the backflow of blood from the left ventricle to the left atrium?

- A) Mitral valve
- B) Aortic valve
- C) Tricuspid valve
- D) Pulmonary valve

13. Which mineral is essential for the structure of hemoglobin molecules?

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

14. What is the term for the movement of molecules from an area of higher concentration to lower concentration across a semi-permeable membrane without energy?

- A) Active transport
- B) Osmosis
- C) Facilitated diffusion
- D) Simple diffusion

15. Which part of the neuron is primarily responsible for receiving incoming signals from other neurons?

- A) Axon
- B) Myelin sheath
- C) Dendrite
- D) Synaptic terminal

16. What is the primary site of hematopoiesis (blood cell formation) in an adult human?

- A) Liver
- B) Red bone marrow
- C) Spleen
- D) Lymph nodes

17. Which immunoglobulin is the most abundant in the human bloodstream and can cross the placenta?

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

18. What is the function of the enzyme pepsin in the human digestive system?

- A) To emulsify fats
- B) To break down proteins into peptides
- C) To neutralize stomach acid
- D) To convert starch into maltose

19. Which endocrine gland is often referred to as the 'master gland' due to its regulation of other glands?

- A) Thyroid
- B) Adrenal
- C) Pituitary
- D) Pineal

20. What type of muscle tissue is found in the walls of the gastrointestinal tract and blood vessels?

- A) Skeletal
- B) Cardiac
- C) Smooth
- D) Striated

21. Which neurotransmitter is most commonly associated with the 'reward' pathway in the brain?

- A) Acetylcholine
- B) Dopamine
- C) Serotonin
- D) GABA

22. In the genetic code, what does a 'codon' consist of?

- A) Two nitrogenous bases
- B) Three nitrogenous bases
- C) Four nitrogenous bases
- D) Five nitrogenous bases

23. Which bone is the longest and strongest in the human body?

- A) Tibia
- B) Fibula
- C) Femur
- D) Humerus

24. What is the primary function of the lymphatic system in the human body?

- A) To transport oxygen
- B) To filter blood and return interstitial fluid to circulation
- C) To produce digestive enzymes
- D) To regulate body temperature

25. Which molecule serves as the primary energy currency of the cell?

- A) ADP
- B) GTP
- C) ATP
- D) AMP