

ANATOMY AND PHYSIOLOGY

This examination is a survey of the structure and function of the human body. Topics include: cells and tissues; integumentary, skeletal, muscular, nervous, circulatory, respiratory, digestive, urogenital, and endocrine systems. (6 s.h.) BIO-211/212-TE

This is a three-hour examination in which you must answer 200 multiple choice questions (worth 1 point each). A passing score is **120** out of 200 points.

Here are the areas covered and their approximate importance on the test:

- I. THE CELL AND TISSUES (10%)
 - A. Biomolecules
 - B. Cell physiology
 - C. Tissue types and functions
- II. INTEGUMENTARY SYSTEM (5%)
 - A. Structure and function
 - B. Physiology
- III. SKELETAL SYSTEM (10%)
 - A. Ossification
 - B. Structure and function
 - C. Names and locations of all bones of the body
 - D. The body
 - E. Joints
- IV. MUSCULAR SYSTEM (10%)
 - A. Structure (microscopic and macroscopic)
 - B. Physiological properties of muscle contraction
 - C. Muscles of the skeleton (names, origin, insertion and action)
 - D. Neuromuscular junction
- V. NERVOUS SYSTEM (10%)
 - A. Structure
 - B. Physiology of nerve impulse
 - C. Central nervous system (structure and function)
 - D. Peripheral nervous system
 - E. Autonomic nervous system
- VI. SENSE ORGANS (STRUCTURE AND FUNCTION) (5%)
 - A. Eye
 - B. Ear
 - C. Taste buds
 - D. Olfactory
 - E. Cutaneous

VII. CIRCULATORY AND LYMPHATIC SYSTEMS (10%)

- A. Blood and lymph (composition, function and properties)
- B. Heart (structure and function)
- C. Blood vessels and lymphatics (names, structure and function)
- D. Fetal circulation
- E. Hemodynamics of circulation
- F. Immunity

VIII. DIGESTIVE SYSTEM (10%)

- A. Structure – gross and microscopic structures of entire alimentary canal and accessory organs
- B. Function – enzymes, hormones, metabolism and the absorption and utilization of food

IX. RESPIRATORY SYSTEM (5%)

- A. Structure
- B. Function – mechanics and regulation of breathing; carbon dioxide and oxygen transport
- C. Cellular respiration

X. UROGENITAL SYSTEM (15%)

- A. Kidney and bladder
- B. Male reproductive organs
- C. Female reproductive organs
- D. Pregnancy and embryo development

XI. ENDOCRINE AND EXOCRINE SYSTEM (10%)

- A. Hormone secreted by each gland and its function
- B. Fluid and electrolyte balance
- C. Regulation of blood glucose levels

Textbooks to help you prepare:

Marieb, Elaine. *Human Anatomy and Physiology*. Current edition. Reading, MA: Addison-Wesley

Seeley, Rod, et al. *Anatomy and Physiology*. Current edition. New York: McGraw-Hill

Shier, David, et al. *Hole's Human Anatomy and Physiology*. Current edition. Boston: McGraw-Hill

SAMPLE QUESTIONS

1. The membrane lining the abdominal cavity is the
 - a. pleura
 - b. peritoneum
 - c. meninges
 - d. pericardium
2. Hyaline cartilage is found in the
 - a. ear lobe
 - b. epiglottis
 - c. tracheal rings
 - d. intervertebral disk
3. Which layer of the epidermis gives rise to new cells by mitosis?
 - a. Stratum corneum
 - b. Stratum lucidum
 - c. Stratum granulosum
 - d. Stratum germinativum
4. The number of thoracic vertebrae is
 - a. 10
 - b. 11
 - c. 12
 - d. 13
5. The contractile unit of a skeletal muscle is called a(n)
 - a. sarcomere
 - b. actin filament
 - c. sarcolemma
 - d. myoneural junction
6. Which division of the nervous system is concerned with "fight or flight"?
 - a. Central
 - b. Parasympathetic
 - c. Peripheral
 - d. Sympathetic
7. The Organ of Corti is found in the
 - a. outer ear
 - b. inner ear
 - c. Eustachian tube
 - d. middle ear

8. The blood vessels having the most elastic tissue are
- capillaries
 - veins
 - lymphatics
 - arteries
9. An active enzyme responsible for protein digestion in the duodenum is
- trypsin
 - pepsin
 - insulin
 - chymotrypsinogen
10. The structure that secretes progesterone is the
- anterior pituitary
 - Graafian follicle
 - corpus luteum
 - primordial follicle
11. Broca's Area is associated with which lobe of the cerebral cortex?
- Frontal
 - Parietal
 - Temporal
 - Occipital
12. Which of the following produce antibodies?
- Neutrophils
 - Eosinophils
 - Thrombocytes
 - Lymphocytes
13. Which of the following are descending fiber tracts of the cord?
- Spinothalamic
 - Spinocerebellar
 - Fasciculus gracilis and cuneatus
 - Corticospinal
14. Blood pressure is highest in
- veins
 - arteries
 - capillaries
 - lymphatics

15. The round window is associated with the
- scala tympani
 - scala vestibuli
 - scala media
 - cochlear duct
16. The pacemaker of the heart is the
- sinoatrial node
 - atrioventricular node
 - bundle of His
 - Purkinje fibers
17. Which of the following describes the inverse relationship between blood pressure and heart rate?
- Starling's Law
 - The Bainbridge Reflex
 - Marey's Law
 - The Valsalva Maneuver
18. Which cranial nerve innervates the muscles of the tongue?
- Facial
 - Trigeminal
 - Hypoglossal
 - Glossopharyngeal
19. Obligatory reabsorption of water is most closely associated with
- proximal convoluted tubule
 - descending loop of Henle
 - collecting ducts
 - distal convoluted tubule
20. The foramina of Luschka and Magendie are associated with which ventricle of the brain?
- Ventricle I
 - Ventricle II
 - Ventricle III
 - Ventricle IV

ANSWERS TO SAMPLE QUESTIONS

1. **b** 2. **c** 3. **d** 4. **c** 5. **a** 6. **d** 7. **b** 8. **d** 9. **a** 10. **c**
11. **a** 12. **d** 13. **d** 14. **b** 15. **b** 16. **a** 17. **c** 18. **c** 19. **a** 20. **d**