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University Examinations 2024/2025

**FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
MEDICAL LABORATORY**

SECOND YEAR FIRST SEMESTER BACHELOR OF MEDICAL LABORATORY

HML 3111/HMU 3113: HUMAN ANATOMY I/HUMAN ANATOMY

DATE: JANUARY 2025

TIME: 3 HOURS

INSTRUCTIONS:

Answer *All* questions

Ensure that all your answers are properly numbered

Part I multiple Choice Questions (MCQ): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark

Part II: Short Answer Questions – Answer questions following each other on the answer booklet

Part III: Long Answer Questions – Answer each question on the answer booklet

SECTION A: MULTIPLE CHOICE QUESTIONS (20 marks)

1. The plasma membrane is made up of:
 - a. A rigid layer of protein
 - b. A double layer of protein and cholesterol
 - c. A double layer of phospholipids with cholesterol and proteins embedded at various spots
 - d. A rigid layer of carbohydrate and protein
2. The nucleus of the cell is called the control center because it:
 - a. Controls the function of all the organelles in the cell.

- b. contains all the genetic material for the cell
 - c. regulates the flow of substances into and out of the cell
 - d. resides at the center of the cell
3. Which list below contains the four types of tissue?
- a. Extracellular fluid, skeletal tissue, glandular tissue, connective tissue.
 - b. Extracellular fluid, muscle tissue, glandular tissue, cartilaginous tissue.
 - c. Neural tissue, skeletal tissue, epithelial tissue, cartilaginous tissue.
 - d. Neural tissue, muscle tissue, epithelial tissue, connective tissue.
4. What is a "trochanter"?
- a. Part of a femur
 - b. A feature of the pelvis
 - c. A projection that forms part of an articulation
 - d. A groove in which lies a tendon
5. What is the difference between simple squamous cells and simple columnar cells?
- a. Squamous cells are flattened while columnar cells are taller than they are wide.
 - b. Simple squamous cells are one layer thick while simple columnar cells are several layers thick.
 - c. Simple squamous cells are epithelial tissue while simple columnar cells are connective tissue.
 - d. Squamous cells are flattened while columnar cells are cuboidal.
6. By what name is the heart muscle known?
- a. Epicardium
 - b. Myocardium
 - c. Pericardium
 - d. Endocardium
7. Which of the following is NOT a "long" bone?
- a. The humerus
 - b. The tibia

- c. A carpal
 - d. A metacarpal
8. Smooth muscle is different from skeletal muscle because smooth muscle
- a. Is found in the walls of arteries
 - b. Can be voluntarily contracted
 - c. Has many nuclei in a cell
 - d. Has intercalated discs between cells
9. Which feature is shared by cardiac muscle cells and skeletal muscle cells?
- a. Striations
 - b. Intercalated discs
 - c. Branching
 - d. Involuntary nature
10. The axial skeleton groups together which sets of bones?
- a. The arms and hands, the legs and feet, shoulder girdle and pelvic girdle
 - b. The head, shoulder girdle, arms and hands
 - c. The thoracic cage, vertebral column, shoulder girdle, the pelvic girdle, the skull and facial bones
 - d. Bones of the skull and face, thoracic cage and vertebral column
11. Which is the major type of nerve cell in the CNS?
- a. Anaxonic
 - b. Unipolar
 - c. Bipolar
 - d. Multipolar
12. Which inner ear structure contains the structures for hearing?
- a. Vestibule
 - b. Semicircular canals
 - c. Cochlea
 - d. Auricle

13. The prime mover for knee extension is the:
- a. Gluteus maximus
 - b. Quadriceps femoris
 - c. Iliacus
 - d. Sartorius
14. The head of a long bone is called the:
- a. Epiphysis
 - b. Endosteum
 - c. Diaphysis
 - d. Periosteum
15. The plane that divides the body into right and left sides is the?
- a. Transverse plane
 - b. Sagittal plane
 - c. Lateral plane
 - d. Frontal plane
16. Which is the outermost layer of the skin?
- a. Dermis
 - b. Epidermis
 - c. Stratum lucidum
 - d. Reticular dermal layer
17. What is the metaphysis?
- a. The shaft of a long bone
 - b. The region that separates the narrow shaft of a long bone from its end
 - c. The end of a long bone
 - d. The canal inside a long bone that contains marrow
18. To which of the following does the "tissue level" of structural organization refer??
- a. Atoms, ions, molecules and electrolytes
 - b. Mitochondria, ribosomes, nucleus, endoplasmic reticulum

- c. Nephron, alveolus, villus, lobule
 - d. Muscle, nervous, connective, epithelial
19. What is the purpose of the myelin sheath around an axon?
- a. To control the chemical environment around the nerve cell
 - b. To phagocytose microbes
 - c. To prevent movement of ions through the nerve cell membrane
 - d. To form the blood-brain barrier
20. Which of the following structures together make up the brainstem?
- a. Medulla oblongata, pons, midbrain, cerebellum
 - b. Medulla oblongata, pons, midbrain
 - c. Medulla oblongata, pons, midbrain, thalamus
 - d. Medulla oblongata, pons, midbrain, pineal gland

SECTION B: SHORT ANSWER QUESTIONS (40 MARKS)

- 1. Outline the classification of epithelium based on function (4 marks)
- 2. Name four major functions of connective tissue (4 marks)
- 3. List four structures found on synovial joints (4 marks)
- 4. Write briefly about the smooth muscle (4 marks)
- 5. Outline any four organs found in the abdominopelvic cavity (4 marks)

SECTION C: LONG ESSAY QUESTION (30 MARKS)

- 1. Describe classification of bones based on shape (15 marks)
- 2. Explain five bone processes and five fossae (15 marks)
- 3. Discuss the structure and function of the eukaryotic cell (15 marks)