

CHUKA



UNIVERSITY

**FIRST YEAR EXAMINATIONS FOR THE
BACHELOR OF SCIENCE (NURSING)**

NURU III: HUMAN ANATOMY I

STREAMS: Bsc Nursing-upgrading (Y1T1)

TIME: 2 HOURS

DAY/ DATE:

INSTRUCTIONS TO CANDIDATES

- Do not write anything on the question paper.
- Mobile phones and any other reference materials are **NOT** allowed in the examination room.
- The paper has three (3) Sections. **ALL** the questions are compulsory
- Your answers for Section A (MCQs) should be on the first page of the answer Booklet.
- Number **ALL** your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.

SECTION A: MULTIPLE CHOICE QUESTIONS (20 Marks)

1. Component of the plasma membrane found in the outer leaflet only is:
 - a) Glycolipid
 - b) Cholesterol
 - c) Integral protein
 - d) Peripheral proteins
2. Plasma membrane permeability is increased by:
 - a) Peripheral proteins
 - b) Integral proteins
 - c) Cholesterol
 - d) Phospholipids
3. The mitochondrion:
 - a) Has a freely permeable inner membrane
 - b) Has a matrix between the membranes
 - c) Is more abundant in skeletal muscles
 - d) Is closely associated with the nucleus

4. Reproductive and somatic cell divisions are different in that in somatic cell division:
 - a) Four daughter cells are formed
 - b) Cytokinesis begins at metaphase
 - c) Haploid cells are formed
 - d) Replication of DNA occurs before prophase
5. The cell junction associated with the basal surface of epithelial cells is:
 - a) Tight
 - b) Gap
 - c) Adherens
 - d) Hemidesmosome
6. The epithelium associated with the digestive tract is:
 - a) Non ciliated columnar
 - b) Pseudostratified ciliated columnar
 - c) Transitional
 - d) Non-keratinized stratified squamous
7. The most abundant glycosaminoglycan in cartilage is:
 - a) Hyaluronan
 - b) Collagen
 - c) Chondroitin sulfate
 - d) Keratin sulfate
8. Osteocytes are mature bone cells that maintain the bone matrix. They are found in the:
 - a) Lamellae
 - b) Lacunae
 - c) Canaliculi
 - d) Haversian system
9. Pleurae and peritoneum are examples of _____ membrane.
 - a) Serous
 - b) Mucus
 - c) Synovial
 - d) Cutaneous
10. Unitary smooth muscles are found in the
 - a) Uterus, iris
 - b) Stomach, intestines
 - c) Blood vessels, iris
 - d) Ciliary muscle, uterus
11. The connective tissue that encircles the entire muscle and forms the muscle tendon is:
 - a) Epimysium
 - b) Endomysium
 - c) Fascia
 - d) Perimysium
12. Most sensory neurons are:

- a) Multipolar
 - b) Anaxonic
 - c) Bipolar
 - d) Unipolar
13. Axons in the central nervous system constitute a :
- a) Tract
 - b) Nerve
 - c) Nucleus
 - d) Ganglion
14. Components of a chemical synapse include all of the following EXCEPT:
- a) Post synaptic membrane
 - b) Voltage gated calcium channels
 - c) Cell body
 - d) Neurotransmitter receptors
15. Concerning nitrogenous bases in nucleic acids:
- a) Adenine pairs with thymine in RNA
 - b) Guanine is larger than cytosine
 - c) Projects from the phosphate group in a DNA chain
 - d) Guanine and cytosine are paired together by a double hydrogen bond
16. In oogenesis, the second meiotic division is arrested at:
- a) Prophase
 - b) Metaphase
 - c) Anaphase
 - d) Telophase
17. During spermiogenesis, the neck and annulus forms in which phase:
- a) Golgi
 - b) Acrosomal
 - c) Cap
 - d) Maturational
18. Ascending aorta and pulmonary trunk develop from:
- a) Bulbus cordis
 - b) Primitive ventricle
 - c) Truncus arteriosus
 - d) Sinus venosus
19. Structures that arise from the embryonic ectoderm of the gastrula include:
- a) Cranial nerves, brain
 - b) Vertebral column, spinal cord
 - c) Bones, muscles
 - d) Salivary glands, tongue
20. Ductus arteriosus shunts blood from:
- a) Umbilical vein to the liver

- b) Umbilical vein to the inferior vena cava
- c) Right atrium to the left atrium
- d) Pulmonary trunk to the descending aorta

SECTION B: SHORT ANSWER QUESTIONS (35 Marks)

- 1. Outline five (5) characteristic features of organelles 5 marks
- 2. Explain the three(3) components of the cytoskeleton 6 marks
- 3. Explain the two(2) types of glands giving an example of each 5 marks
- 4. State five (5) distinguishing features between cardiac and skeletal muscles 5 marks
- 5. Explain the two (2) layers of the basement membrane 4 marks
- 6. Explain the three (3) components that make the ground substance of connective tissue 6 marks
- 7. State four(4) neuroglia cells associated with the brain 4 marks

SECTION C: LONG ANSWER QUESTIONS (15 Marks)

- 1. Female reproductive cycles begin at puberty and end at menopause. They are regulated by a variety of hormones secreted by the hypothalamus and anterior pituitary
 - a) Draw a well labeled diagram illustrating the components of a mature Graffian follicle 5 marks
 - b) Describe the three(3) phases of the ovarian cycle 10 marks