

CHUKA



UNIVERSITY

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## UNIVERSITY EXAMINATIONS

### EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN NURSING UPGRADING

NURU 111: HUMAN ANATOMY 1

STREAMS: BSC (NURS) YIT1

TIME: 2 HOURS

DAY/DATE: MONDAY 05/08/2019

2.30 PM – 4.30 PM

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#### INSTRUCTIONS:

- **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. Membrane fluidity is dependent on amount of:
  - (a) Cholesterol
  - (b) Number of hydrogen bonds
  - (c) Glycocalyx
  - (d) Anchoring proteins
2. The inner and outer leaflet of the plasma membrane are asymmetrical. This is due to presence of:
  - (a) Proteins in the inner leaflet
  - (b) Glycolipids in the outer leaflet
  - (c) Glycoproteins in the inner leaflet
  - (d) Phospholipids in the outer leaflet
3. Which of the following organelles is associated with rapidly dividing cells:
  - (a) Mitochondria

- (b) Rough endoplasmic reticulum
  - (c) Nucleolus
  - (d) Centrosome
4. Protein subunit found in the microfilaments is:
- (a) Actin
  - (b) Tubulin
  - (c) Keratin
  - (d) Collagen
5. Synapsis is associated with the reproductive cell cycle. It occurs in which phase?
- (a) Prophase
  - (b) Metaphase
  - (c) Anaphase
  - (d) Telophase
6. Which of the following processes is associated with the G2 phase of the cell cycle?
- (a) Chromatin condensation
  - (b) DNA replication
  - (c) Replication of cytoplasmic organelles
  - (d) Replication of cytosolic enzymes
7. Examples of dense regular connective tissue include:
- (a) Bone
  - (b) Ligament
  - (c) Cartilage
  - (d) Blood
8. The most abundant but weakest cartilage in the body is:
- (a) Hyaline
  - (b) Elastic
  - (c) Fibrocartilage
  - (d) Reticular
9. A serosa is associated with all of the following structures EXCEPT:
- (a) Uterus
  - (b) Stomach
  - (c) Vagina
  - (d) Heart
10. Non-keratinized stratified squamous epithelium is associated with the:
- (a) Skin, mouth
  - (b) Vagina, mouth
  - (c) Nose, blood vessels
  - (d) Ureter, vagina

11. Examples of holocrine glands include:
  - (a) Salivary, sebaceous
  - (b) Pancreas, sweat
  - (c) Thyroid, pancreas
  - (d) Sebaceous, Meibomian
  
12. Organs containing multi-unit smooth muscles include:
  - (a) Iris
  - (b) Stomach
  - (c) Uterus
  - (d) Urinary bladder
  
13. Myelinated cranial and spinal nerves are likely to have abundant:
  - (a) Oligodendrocytes
  - (b) Schwann cells
  - (c) Ependymal cells
  - (d) Satellite cells
  
14. Most motor neurons are:
  - (a) Bipolar
  - (b) Anaxonic
  - (c) Pseudounipolar
  - (d) Multipolar
  
15. The placenta consists of a maternal and fetal component. The maternal component arises from:
  - (a) Chorion frondosum
  - (b) Chorion leave
  - (c) Decidua basalis
  - (d) Decidua capsularis
  
16. Which of the following arises from the ectoderm of the embryonic germ cell:
  - (a) Spinal nerves
  - (b) Blood
  - (c) Connective tissue
  - (d) Gastric epithelium
  
17. Which of the following is true regarding oogenesis:
  - (a) Starts at puberty
  - (b) Results in primary oocyte with diploid number of chromosomes
  - (c) 2<sup>nd</sup> meiotic division is completed at fertilization
  - (d) Results in two secondary oocytes
  
18. The third step in the process of fertilization is:
  - (a) Penetration of zona pellucida
  - (b) Penetration of corona radiata

- (c) Completion of first meiotic division
  - (d) Merging of sperm and oocyte membrane
19. The most important factor contributing to ovulation is:
- (a) LH surge
  - (b) Increased in intrafollicular pressure
  - (c) Smooth muscle contraction in theca
  - (d) Local weakness of the ovarian surface
20. Fetal circulation contains several temporary structures that shunt blood between various parts of the circulation. The shunt that connects the pulmonary trunk and the ascending aorta is:
- (a) Ductus venosus
  - (b) Ductus arteriosus
  - (c) Foramen ovale
  - (d) hypogastric arteries

**SECTION B: SHORT ANSWER QUESTIONS (35 MARKS)**

- 1. Describe the structural organization of a human cell nucleus. [5 marks]
- 2. State five (5) functional proteins associated with the plasma membrane. [5 marks]
- 3. Draw a well labelled diagram illustrating the parts of a myelinated neuron. [5 marks]
- 4. Cells are usually connected to other cells and to the basement membrane by cell junctions. Describe three (3) such junctions. [6 marks]
- 5. Compare and contrast cardiac and smooth muscles. [5 marks]
- 6. State five (5) cells associated with the connective tissue indicating the function of each. [5 marks]
- 7. Classify epithelial tissue based on the cell shape. [4 marks]

**SECTION C: LONG ANSWER QUESTIONS (15 MARKS)**

Female reproductive cycles begin in puberty. They prepare the reproductive system for pregnancy.

- (a) Discuss two (2) hormones that regulates the female reproductive cycles. [4 marks]
  - (b) Describe the phases of the menstrual cycle. [11 marks]
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