



**AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF MEDICAL SCIENCES  
DEPARTMENT OF NURSING AND MIDWIFERY SCIENCES  
KENYA REGISTERED COMMUNITY HEALTH NURSING  
END OF SEMESTER EXAMINATIONS**

**DNS 112: ANATOMY AND PHYSIOLOGY**

**DATE: 15<sup>TH</sup> APRIL 2024**

**TIME: 2 Hours**

**Start: 0900 HOURS**

**Finish: 1100 HOURS**

**INSTRUCTIONS**

- 1. This exam will be marked out of 70 Marks**
- 2. ALL Questions are compulsory.**
- 3. The Examination has Three Sections: Section I- Multiple Choice Questions, Section II: Short Answer Questions, Section III: Long Essay Questions**
- 4. Answer all Questions in the ANSWER BOOKLET provided**
- 5. Do Not write anything on the question paper -use the back of your booklet for rough work if need be.**

**SECTION I: MULTIPLE CHOICE QUESTIONS ( 40 MARKS)**

1. The cellular organelle in which synthesis of ATP through the Krebs's Cycle takes place is :-
  - a. Lysosomes
  - b. Peroxisome
  - c. Ribosomes
  - d. Mitochondria
2. One of the following is an excitable tissue: -
  - a. Cartilage
  - b. Endothelium
  - c. Epithelium
  - d. Muscles
3. The following statement is TRUE regarding anatomical relations: -
  - a. The sternum is superficial to the heart
  - b. The trachea is posterior to the esophagus
  - c. The liver is superior to the right kidney
  - d. Carotid arteries are inferior to the apex of the heart
4. One of the following bone cells is a differentiated monocyte: -
  - a. Osteocytes
  - b. Osteoblasts
  - c. Osteoprogenitor
  - d. Ostium
5. The anatomical plane that divides the body into left and right is known as the:-
  - a. Sagittal Plane
  - b. Coronal Plane
  - c. Axial Plane
  - d. Transverse Plane

6. The component of DNA that codes for a specific protein is known as: -
  - a. Chromatid
  - b. Chromosome
  - c. Gene
  - d. Nucleotide
7. The vitreous humor:-
  - a. Forms out of filtration from ciliary capillaries
  - b. Collects in the anterior chamber of the eye
  - c. Nourishes the sclera and ciliary body
  - d. Can't be reproduced by the eye once it leaks
8. The main intracellular electrolytes include: -
  - a. Potassium and Phosphate
  - b. Sodium and Chloride
  - c. Potassium and Bicarbonates
  - d. Sodium and magnesium
9. The component of the electrical conducting system of the heart that acts as a gatekeeper of action potential to the ventricles is:-
  - a. Atrioventricular node
  - b. Sinoatrial node
  - c. Purkinje fibers
  - d. Bundle of His
10. The brain stem comprises of the: -
  - a. Cerebrum, cerebellum, basal ganglia
  - b. Spinal cord, Midbrain, and Pons
  - c. Midbrain, Pons, Medulla Oblangata
  - d. Spinal cord, Pons, Medulla Oblangata
11. Infusion of the following intravenous fluid will cause brain cell to swell: -
  - a. 0.9 % Sodium Chloride
  - b. 3 % Sodium Chloride
  - c. 0.45 % Sodium Chloride
  - d. 30 % Sodium Chloride

12. The major blood vessels forming the circle of Willis include: -
- Internal carotid artery and brachial arteries
  - Internal carotid arteries and vertebral arteries
  - External carotid arteries and brachial arteries
  - External carotid arteries and brachial arteries
13. The following is TRUE regarding foetal circulation: -
- There is only one umbilical artery
  - Umbilical vein carries deoxygenated blood.
  - Umbilical arteries are oxygenated by foetal lungs.
  - Maternal uterine arteries supply placental tissue.
14. The following is a cartilaginous joint: -
- Elbow joint
  - Hip Joint
  - Pubic symphysis
  - Skull sutures
15. Vision is a function of: -
- Parietal lobe
  - Frontal lobe
  - Occipital lobe
  - Temporal lobe
16. The following blood vessel is nutrient rich but oxygen deficient
- Hepatic artery
  - Hepatic portal vein
  - Hepatic vein
  - Central vein

17. The most appropriate bone to conduct a bone marrow biopsy for purposes of diagnosing a hematopoietic disease in a 26-year-old male client is: -
- Pelvic or Sternum
  - Tibia or Sternum
  - Ulna or Pelvic
  - Radius or Ribs
18. The homeostatic mechanism demonstrated by the birth process which mediated by oxytocin in a neuroendocrine fashion is an example of:-
- Positive feedback
  - Adaptive system
  - Negative feedback
  - Feedforward system
19. The following is true about platelets: -
- Survive for 120 days
  - It has nuclear
  - They repair tissues
  - Formed by spleen
20. The following constitute a physiological buffer: -
- Bicarbonates
  - Lungs
  - Hemoglobin
  - Phosphates
21. Eccrine glands secrete: -
- Sweat
  - Sebum
  - Melanin
  - Hormones
22. Purine nitrogenous bases of DNA is composed of \_\_\_\_\_ and \_\_\_\_\_.
- adenine and guanine.
  - cytosine and thymine.
  - Uracil and adenine
  - Guanine and thymine

23. Blood glucose of 11 mmol/L will stimulate production\_\_\_\_\_hormone.
- Insulin
  - Glucagon
  - Cortisol
  - Somatostatin
24. Normal cardiac output in a healthy human being is :-
- 1 L/min
  - 3 L/min
  - 5 L/min
  - 7 L/min
25. The heart valves are lined by:-
- Epicardium
  - Myocardium
  - Endocardium
  - Pericardium
26. Stroke volume is:-
- Amount of blood in the ventricle after contraction
  - Amount of blood ejected by the right ventricle
  - Amount of blood pumped out of the heart per minute
  - Amount of blood ejected by the ventricles per contraction
27. The largest diameter in the pelvic outlet is:-
- Transverse diameter
  - Anteroposterior diameter
  - Oblique diameter
  - Diagonal conjugate
28. Trachea is lined by:-
- Stratified squamous epithelium
  - Cuboidal epithelium
  - Simple columnar epithelium
  - Pseudostratified columnar epithelium
29. Normally, the respiratory centre is stimulated by:\_
- Oxygen levels in blood
  - Blood Ph
  - Carbon dioxide
  - Lactic acid

30. Relaxation of internal intercostal muscles causes:-
- Inhalation
  - Exhalation
  - Internal respiration
  - Cellular respiration
31. Muscles used in respiration include all the following **except**:-
- Internal intercostal muscles
  - External intercostal muscles
  - Diaphragm
  - Sternocleidomastoid muscles
32. The normal effect of antidiuretic hormone on urinary output is:--
- Anuria
  - Oliguria
  - Polyuria
  - Diuresis
33. Corticosteroid is naturally produced by:-
- Hypothalamus
  - Thyroid gland
  - Ovaries
  - Adrenal gland
34. Parathyroid hormone acts on the kidneys to cause:-
- Calcium retention and phosphate loss
  - Calcium loss and phosphate retention
  - Loss of both calcium and phosphate
  - Retention of calcium and phosphate
35. Growth hormone secretion is decreased in the following condition in human beings:-
- Sleep
  - Hyperglycemia
  - Surgical stress
  - Hypersecretion of glucagon
36. The structures that holds the small intestines in position are:-
- Lesser omentum
  - Greater omentum
  - Mesentery
  - Mesocolon

37. Stimulation of the parasympathetic nerves in the digestive system causes:-
- Decreased gastrointestinal motility
  - Increased gastrointestinal secretions
  - Increased tone of anal sphincters
  - Decreased dilatation of the portal veins
38. Chief cells in the gastric glands secrete:-
- Trypsinogen
  - Pepsinogen
  - Hydrochloric acid
  - Intrinsic factor
39. The substance that hydrolyses the dietary proteins into amino acids is:-
- Lipase
  - Trypsin
  - Bile
  - Amylase
40. The length of female urethra is:-
- 18cm
  - 4cm
  - 6cm
  - 1cm



**PART II: SHORT ANSWER QUESTIONS (30 MARKS)**

1. State three (3) types of granulocytes (3 Marks)
2. Describe the extrinsic coagulation pathway (6 Marks)
3. Determine the mean arterial blood pressure and pulse pressure of patient with 160/80 mmHg (5 Marks)
4. State five (5) functions of kidneys (5 Marks)
5. Outline any five (5) steroid hormones (5 Marks)
6. State five (5) reasons why nurses should study anatomy and physiology (6 Marks)