



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY SCIENCES
KENYA REGISTERED COMMUNITY HEALTH NURSING
END OF SEMESTER EXAMINATIONS APRIL 2023**

DNS 112: ANATOMY AND PHYSIOLOGY

DATE: TUESDAY 4th APRIL 2023

TIME: 2 Hours Start: 0900 Finish: 1100

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 A: MULTIPLE CHOICE QUESTION

1. Kupffer cells of the liver are: -
 - A. Sinusoids
 - B. Hepatocytes
 - C. Macrophages
 - D. Essential in de-amination of amino acids

2. The layer of the alimentary canal wall that absorbs the end products of digestion is: -
 - A. sub-mucosa
 - B. muscularis externa
 - C. serosa
 - D. mucosa

3. The following statement is true of “external respiration”: -
 - A. Exchange of gases between alveolar air and the blood in pulmonary capillaries.
 - B. Exchange of dissolved gases between blood in tissue capillaries and the body tissues.
 - C. The production of CO₂ from organic molecules in the cells by using O₂.
 - D. The inhalation of atmospheric air into the lungs followed by exhalation.

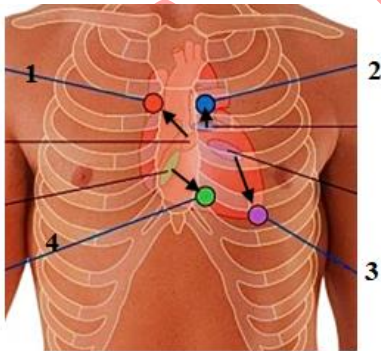
4. The cytoplasm of erythrocytes that contains an oxygen binding protein is: -
 - A. Haemoglobin
 - B. Bilirubin
 - C. Haptoglobin
 - D. Albumin

5. Baroreceptors are present in: -
 - A. Aortic arch
 - B. Carotid sinus
 - C. Root of the right subclavian artery
 - D. All the above

6. The swelling or dilation of blood vessels where part of the wall of artery inflated like balloon is: -
 - A. Aneurysm
 - B. Atheroma
 - C. Buerger's disease
 - D. Intussusception

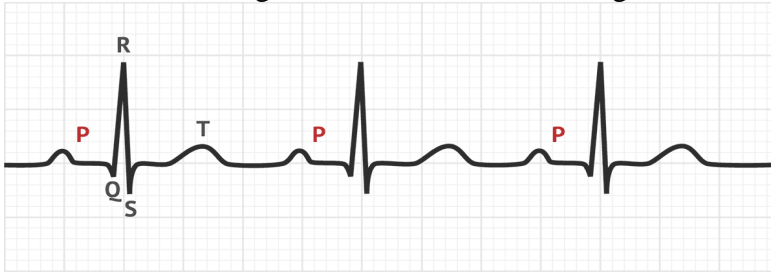
7. The “conducting zone” of the lower respiratory tract contain: -
 - A. Eustachian tube, larynx and trachea.
 - B. Primary, secondary and tertiary bronchi and bronchioles.
 - C. Nares, conchae, olfactory mucosa and sinuses.
 - D. Nasopharynx and larynx.
8. The function of the cilia on the cells that line the bronchial tree is: -
 - A. They help mix the inhaled fresh air with the residual air contained in the bronchial tree.
 - B. They slow the movement of air to allow for efficient exchange of gases.
 - C. They move the mucus on the cell surface up out of the bronchial tree.
 - D. They filter particles from inhaled air.
9. The anterior chamber of the eyeball has: -
 - A. Aqueous humor
 - B. Vitreous humor
 - C. Uveal tract
 - D. Rhodopsin
10. Muscle contraction involves: -
 - A. Interlocking of myosin and actin
 - B. Sliding movement between myosin and actin fibers
 - C. Release of myoglobin into myofibrils
 - D. Breakdown of hemoglobin and ATP

Use the diagram below to answer question 11 and 12: -



11. The apical pulse is best auscultated at: -
 - A. 1
 - B. 2
 - C. 3
 - D. 4
12. The S1 is best heard from the following two points: -
 - A. 1&2
 - B. 3&4
 - C. 1&3
 - D. 2&4

13. One of the following is true about electrocardiogram: -



- A. ECG is a recording of blood circulation in the heart
- B. QRS wave represent ventricular repolarization
- C. T wave represent ventricular repolarization.
- D. P-wave is ventricular depolarization

14. T lymphocytes: -

- A. Are produced and processed in bone marrow
- B. Produce antibodies
- C. Targets one specific antigen
- D. Are produced in the thymus gland

15. Interstitial fluid is about: -

- A. 25 liters
- B. 3 liters
- C. 15 liters
- D. 12 liters

16. It is the most abundant electrolyte in extracellular fluid: -

- A. Na^+
- B. K^+
- C. Cl^-
- D. HCO_3^{-2}

17. Skin glands that secrete oils and contribute to skin waterproof properties are: -

- A. Sudiferous glands
- B. Sebaceous glands
- C. Meisner's corpuscles
- D. Ceruminous glands

18. The (+) sign in blood group AB^+ implies: -

- A. The individuals have positive attitude.
- B. The fructose sugar on red blood cells is present.
- C. High risk pregnancies in women.
- D. The individuals have rhesus protein.

19. Red blood cells that do not contain either A or B antigens on their surface are normally found in the person with blood type: -
- A. A
 - B. AB
 - C. O
 - D. B
20. The female urethra measures: -
- A. 18 – 20 cm
 - B. 3 – 4 cm
 - C. 10 – 12 cm
 - D. 6 – 8 cm

SECTION B: SHORT ANSWER QUESTION (30 MARKS)

1. State five (5) functions of digestive system (5 Marks)
2. Outline six (6) functions of Cerebrospinal Fluid (6 Marks)
3. State three (3) phases of gastric secretion (3 Marks)
4. Name five (5) organelles of a cell (5 Marks)
5. Calculate the Mean Arterial Pressure (MAP) of tissue given a systolic pressure of 139 mmHg and a diastolic pressure of 87 mmHg (5 Marks)
6. Draw and label a neuron (6 Marks)

SECTION C: LONG ANSWER QUESTION (20 MARKS)

1. Ms. Z is admitted in the medical ward, she is noted to have low urine output of 20mls/hour and has low blood pressure 90/45 mmHg
 - b. State six (6) functions of the kidney (6 Marks)
 - c. Draw and label the nephron (8 Marks)
 - d. Outline the Renin-Angiotensin-Aldosterone system in the regulation of blood pressure (6 Marks)