



**AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF MEDICAL SCIENCES  
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES  
SUPPLIMENTARY EXAMINATIONS MARCH 2024**

**COURSE CODE AND TITLE: BSN 113 MEDICAL PHYSIOLOGY I  
(SUPPLEMENTARY)**

**DATE:**

Duration: 2 HOURS

Start: 9:00 AM

Finish: 11:00 AM

**INSTRUCTIONS**

1. This exam is out of 70 marks
2. This Examination comprises THREE Sections. Section I: Multiple Choice Questions (20 marks) Section II: Short Answer Questions (30 marks) and Section III: Long Answer Questions (20 marks)
3. Answer ALL Questions.
4. 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**  
**MARKS)**

**(20**

1. Synthesis and secretion of erythropoietin is stimulated by: -
  - A. Low sodium levels
  - B. Increased carbon dioxide
  - C. Reduced red blood cells
  - D. Reduced oxygen tension in blood
2. Renin secretion is increased by: -
  - A. Increased plasma sodium
  - B. Increased plasma potassium
  - C. High blood pressure
  - D. Aldosterone release.
3. Stroke volume is defined as: -
  - A. Blood returning in heart
  - B. End diastolic volume
  - C. Blood pumped per single ventricular contraction
  - D. Cardiac output
4. Single file flow occurs in: -
  - A. Arteries
  - B. Veins
  - C. Ventricles
  - D. Capillaries

5. Calcium binds on one the following element to expose myosin binding site: -
- A. Tropomyosin
  - B. Troponin I
  - C. Troponin
  - D. Calmodulin
6. Carbon dioxide is mainly transported as: -
- A. Carboxyhaemoglobin
  - B. Carbaminocompounds
  - C. Bicarbonate
  - D. Carbonic acid
7. One of the following integral proteins is an example of primary active transport: -
- A. Sodium-Iodide symporter
  - B. Sodium-Hydrogen Exchanger
  - C. Shift of water molecules
  - D. Hydrogen-Potassium ATPase
8. One of the following is an intracellular buffer
- A. Chloride
  - B. Bicarbonate
  - C. Phosphate
  - D. Magnesium
9. Isotonic solutions
- A. Have higher osmolarity than blood plasma
  - B. They have lower osmolarity than blood plasma
  - C. 10 % Sodium Chloride is an example
  - D. Have same osmolarity as blood plasma
10. The mRNA translation: -
- A. Comes before transcription
  - B. Takes place at granular endoplasmic reticulum
  - C. Takes place at Golgi Body
  - D. It is the final process of protein synthesis

11. Meiosis

- A. Take place only in somatic cell
- B. Results in two diploid cells
- C. Recombination of DNA material takes place
- D. All of the above

12. Clotting factor IV

- A. Is thrombin
- B. It is charismas factor
- C. It is calcium
- D. Needed in first step of intrinsic pathway

13. Classic Hemophilia

- A. It is more in females than male
- B. It is caused by a deficiency of factor VII
- C. Blood becomes more prone to clot formation.
- D. It is an X-linked recessive hereditary disorder

14. Rods and cons are: -

- A. Respond to stimulation by depolarization
- B. Pressure is their adequate stimulus
- C. They respond to infra-red rays
- D. Respond to visible electromagnetic energy

15. Mannitol is an important marker of:

- A. Intracellular compartment
- B. Transcellular compartment
- C. Extracellular compartment
- D. Intravascular compartment

16. One of the following is an example of innate immunity: -

- A. B-cell
- B. T-cells
- C. CD-8 cells
- D. Microphage

17. Gaseous exchange takes place first in: -
- A. Terminal bronchioles
  - B. Respiratory bronchioles
  - C. Alveolar
  - D. Trachea
18. Hyperventilation results in the following change in blood plasma: -
- A. Rise in oxygen carriage capacity
  - B. Fall in p.H.
  - C. Rise in p.H.
  - D. Rise in carbon dioxide level
19. Dysfunction of the thymus will affect the maturity of: -
- A. B-cells
  - B. Monocytes
  - C. Neutrophils
  - D. CD-4 cells
20. The third heart sound is caused by: -
- A. Closure of mitral and tricuspid valve
  - B. Closure of mitral and pulmonic valve
  - C. Rapid ventricular filling
  - D. Slow ventricular filling

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

1. State three functions of mitochondria (3Marks)
2. State components and function of cell membrane (5 Marks)
3. Name the cells that are formed by colony lymphoid progenitor cells (5 Marks)
4. State five functions of respiratory system (5 Marks)
5. Outline steps involved excitation-contraction coupling (5 Marks)
6. State five components of conducting system of the heart (5 Marks)
7. Draw a labelled diagram of a typical nerve action potential and indicate the different phases (4 Marks)

1. Explain control mechanism under following subheading (20 Marks)
  - a) Positive Feedback mechanism and characteristic
  - b) Negative Feedback and characteristic
  - c) Regulation of respiratory system
  - d) Regulation of blood pressure

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