



**AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF MEDICAL SCIENCES  
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES  
END OF SEMESTER DECEMBER 2023 EXAMINATIONS**

**BSN 221: CLINICAL CHEMISTRY & HAEMATOLOGY (SUPPLEMENTARY  
EXAMINATION)**

**DATE:**

**Duration:** 2 HOURS

**Start:**

**Finish:**

**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 A. MULTIPLE CHOICE QUESTIONS (MCQs)-20 MARKS**

1. A decrease in which of the following laboratory results is a diagnostic criterion for anemia: -
  - A. White blood cell count
  - B. Hematocrit
  - C. Platelet count
  - D. Lymphocyte count
  
2. The following is a property of white blood cells: -
  - A. RBCs destruction
  - B. Phagocytosis
  - C. Detoxifying function
  - D. Oxygen transporter
  
3. Type II diabetes is characterized by: -
  - A. Onset in early adulthood.
  - B. Severe beta-cell depletion.
  - C. Islet cell antibodies.
  - D. Normal or increased blood insulin.
  
4. A 30-year-old presents with intractable vomiting and inability to eat or drink for the past 3 days. His blood glucose level is normal. Which of the following is most important for maintenance of blood glucose?
  - A. Liver
  - B. Heart
  - C. Skeletal muscle
  - D. Spleen

5. Normal serum potassium levels ranges-

- A. 3.5- 5.2mmol/L.
- B. 2.0- 3.8mmol/L.
- C. 6.3- 9.4mmol/L
- D. 10.2- 14.3mmo/L.

6. The following Scientist discovered blood group system in 1901: -

- A. Lewis
- B. Karl Landsteiner
- C. Duffy
- D. Lutheran

7. All the following principle of specimen collection is fundamental to ensuring appropriate specimen management.

- A. Collect excess quantity of specimen.
- B. Label the specimen accurately with the specific anatomic site and the patient information.
- C. Select any anatomic site to collect the specimen.
- D. It is acceptable to delay transport of the specimen to the laboratory if in transport media.

8. Gluconeogenesis is increased in the following condition: -

- A. Diabetes insipidus
- B. Diabetes Mellitus
- C. Hypothyroidism
- D. Liver diseases

9. The following is a clinical significance of elevated serum phosphorous in blood;

- A. Rickets
- B. Osteomalacia
- C. Renal impairment
- D. Hypoparathyroidism

10. The following is a parameter for blood indices: -

- A. Normocytic Normochromic
- B. Packed cell volume
- C. Erythrocyte sedimentation rate (ESR)
- D. Mean corpuscular haemoglobin concentration (MCHC)

11. Purple top tube is ideal for collecting blood for Haemogram test which include: -

- A. Sodium citrate
- B. Lithium heparin
- C. Ethylene Diamine Tetra-Acetic Acid (EDTA) liquid
- D. Sodium heparin

12. Which of the following cells is A granulocyte: -

- A. Monocytes
- B. Neutrophil
- C. Eosinophil
- D. Basophil

13. The preservative added to urine to be used for biochemical analysis is:-

- A. Hydrochloric acid
- B. Toluene
- C. Formalin
- D. Thymol

14. The following is a function of bile salt: -

- A. Destruction of RBCs.
- B. Protein metabolism
- C. Emulsification of fats in the intestine.
- D. Conversion of ammonia to urea

15. Vasodilation and bronchoconstriction would be associated with which blood cell: -

- A. Eosinophilic
- B. Basophils
- C. Monocytes
- D. Neutrophils

16. Which of the following electrolytes is a cation?

- A. Sulphates.
- B. Bicarbonates.
- C. Potassium.
- D. Phosphates.

17. Which of the following substances require the patient a fasting blood specimen?

- A. Potassium.
- B. Calcium.
- C. Cholesterol.
- D. Chlorides

18. A Nursing personnel was asked to send a blood specimen from HIV-positive patient for blood chemistry to a laboratory. The specimen must be properly labeled and shipped as:
- A. Diagnostic specimen.
  - B. Infectious substance.
  - C. Biological product.
  - D. Clinical specimen
19. Which of the following is a Fibrin-stabilizing factor?
- A. Factor II
  - B. Factor VII
  - C. Factor XIII
  - D. Factor IX
20. A corrosive material was spilled onto the hand of a Nurse staff. After diluting the material under running cold water, what should be done next?
- A. Consult Material Safety Data Sheet (MSDS).
  - B. Wipe up spills with paper towel.
  - C. Dilute spills and remove it in a biohazard bag.
  - D. Go to the emergency room and rest.

**SECTION B. SHORT ANSWER QUESTIONS- (30 MARKS)**

1. State reasons for studying clinical Chemistry in regard to patient management (6 Marks)
2. Describe the Clinical applications for Liver Function Tests (6 Marks)
3. State tests involved for tubular function testing (6 Marks)
4. Outline conditions under which Packed cell volume (PCV) decreases (6 Marks)
5. Explain the mandatory screening tests for blood donors (6 Marks)

**SECTION C. LONG ANSWER QUESTIONS- (20 MARKS)**

1. Explain the FIVE (5) etiologic classifications of anemia (10 marks)
2. Describe FIVE (5) factors that determine blood glucose level in the body (10 marks)