AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY SCIENCES
BACHELOR OF SCIENCE IN NURSING (BSN)
September-December 2024 TRIMESTER MAIN EXAMINATION

COURSE CODE AND TITLE: BSN 221-Clinical Chemistry & Haematology

DATE:

TIME: 2 HOURS **START: 9:00AM** **END: 11:00AM**

Instructions

1) This exam is out of 70
2) This paper has three sections: Section I: Multiple choice Questions (MCQ) (20 marks), Section II: Short answer questions (SAQ) (30 marks) and Section III: Long answer question (LAQ) (20marks)
3) Answer **ALL** questions in Section I and Section II and III
4) Answer all the questions in the examination booklets provided
5) Any rough work to be done at the back of the answer booklet

SECTION I. MULTIPLE CHOICE QUESTIONS (MCQs)-20 MARKS

1. One of the hormonal functions of kidney is to:
   A. Balance electrolytes
   B. Secrete erythropoietin
   C. Extrete waste products
   D. gluconeogenesis
2. Haematuria is;-
   A. Pus in urine
   B. Glucose in urine
   C. Protein in urine
   D. Blood in urine
3. The following statements regarding ALP is true;-
   A. In normal adults, the primary tissue source is fast – twitch skeletal muscle
   B. Geriatric patients have a lower serum ALP than other adults
   C. Serum ALP levels are lower in children than in adults
   D. Pregnant women have a higher level of serum ALP than other adults
4. The two main patterns of liver injury are:
   A. Hepatocellular and cholestatic
   B. Cholestatic and obstructive
   C. Necrotic and hepatocellular
   D. Neoplastic and cholestatic
5. Creatinine is formed from the:
   A. Oxidation of creatine
   B. Oxidation of protein
   C. Deamination of dibasic amino acids
   D. Metabolism of purines
6. The following statement regarding creatinine is;-
   A. Serum levels are elevated in early renal disease
   B. High serum levels result from reduced glomerular filtration
   C. Serum creatine has the same diagnostic utility as serum creatinine
   D. Serum creatinine is a more sensitive measure of renal function than creatinine clearance
7. The statements below about serum urea is true;-
   A. Levels are independent of diet
   B. Urea is not reabsorbed by the renal tubules

C. High BUN levels can result from necrotic liver disease
D. BUN is elevated in prerenal as well as renal failure

8. Fluoride is the additive used in testing blood for:
   A. Blood sugar
   B. Coagulation
   C. Electrolyte
   D. Complete blood count
9. A 47 year old female with a family history of diabetes mellitus is likely to develop:
   A. Type 1 diabetes mellitus
   B. Type 2 diabetes mellitus
   C. Gestational diabetes mellitus
   D. Secondary diabetes mellitus
10. In high altitudes, the hemoglobin value is:
   A. Higher
   B. Lower
   C. The same
   D. Not altered
11. The polypeptide chains of hemoglobin A are composed of:
   A. 1 alpha, 3 beta
   B. 2 alpha
   C. 2 alpha, 2 beta
   D. 1 alpha, 2 beta, 1 delta
12. In the breakdown of RBCs, bilirubin is:
   A. Reused by new red cells
   B. Oxidized to biliverdin
   C. Returned to the pool
   D. Excreted
13. The following contain erythrocytic inclusions of RNA and can be observed by staining with new methylene blue is;-
   A. Howell – Jolly bodies
   B. Heinz bodies
   C. Pappenheimer bodies
   D. Reticulocytes
14. The chief function of the platelet is to:
   A. Fight infection
   B. Aid in coagulation
   C. Antibody formation
   D. Carry oxygen
15. The term thrombocytopenia indicates a/an:
   A. Abnormally low number of thrombocytes

B. Abnormally high number of thrombocytes
C. Normal number of platelets
D. Abnormally low total white blood count

16. RBC production is initiated by the hormone:
    A. Luteinizing LH
    B. Interstitial cell stimulating (ICSH)
    C. Parathyroid hormone
    D. Erythropoietin
17. An increase of total leukocytes over the normal is called:
    A. Leukemia
    B. Leukopenia
    C. Leukocytosis
    D. pancytopenia
18. The cell that functions as a plug at the site of bleeding is the:
    A. Eosinophil
    B. Red cell
    C. Platelet
    D. Neutrophil
19. Polychromatophilic erythrocytes are also called:
    A. Ovalocytes
    B. Left shift
    C. Nucleated red blood cells
    D. Reticulocytes
20. The following becomes a tissue macrophage after a brief stay in the blood?
    A. Monocyte
    B. Lynphocyte
    C. Neutrophil
    D. Plasma cells

SECTION II: SHORT ANSWER QUESTIONS (30 MARKS)

1. Haemolysis is a source of unreliable clinical chemistry results, outline five (5) precautions that can be taken to avoid haemolysis (5 marks).
2. Outline five (5) criteria for specimen rejection in the clinical chemistry laboratory(5 marks).
3. Outline five (5) common clinical condition that may cause metabolic acidosis (5 marks).
4. Explain three (3) procedures undertaken in preparing blood for transfusion (6 marks).
5. Explain two (2) main cell types observed in peripheral blood (4 marks).
6. Define anaemia. Give its morphological types with examples (5 marks).

SECTION III: LONG ANSWER QUESTION (20 MARKS)

1. Analysis Blood components is necessary in patient management.
   a) Describe the ABO and Rhesus blood grouping system (10 marks).
   b) Discuss the classification, symptoms and diagnostic criteria for diabetes mellitus in clinical chemistry (10 marks).