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

COURSE CODE AND TITLE: BSN 221 CLINICAL CHEMISTRY & HAEMATOLOGY

DATE: 4-DECEMBER-2023

Duration: 2 HOURS Start: 11:15AM Finish: 1:15PM

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 (MCQs)-20 MARKS

1. A degradation product of hemoglobin is: -
   A. Anisocytosis
   B. Intrinsic factor
   C. Bilirubin
   D. Polycythemia

2. The following locations is not a site of extramedullary hematopoiesis: -
   A. Bone marrow
   B. Liver
   C. Spleen
   D. Thymus

3. The following differential count shows an elevated eosinophil count: -

   A. Aplastic anemia
   B. Bacterial infection
   C. Parasitic infection
   D. Viral infection

4. The following factors is associated with hemophilia B: -

   A. Factor VIII
   B. Factor IX
   C. Factor XI
   D. Fibrinogen

5. A first morning specimen would be requested to confirm which of the following: -

   A. Diabetes insipidus
   B. Fanconi's syndrome
   C. Urinary tract infection
   D. Orthostatic proteinuria

6. The following condition is associated with Fasting triglycerides and a triglyceride value of 1036 mg/dL: -

   A. Coronary heart disease
   B. Diabetes
   C. Pancreatitis
   D. Gout

7. Hepatocellular damage may be best assessed by: -

A. Serum AST and ALT levels
B. GGT and ALP
C. Bilirubin, GGT, and ALP
D. Ammonia and urea

8.The following tubes will be ideal for blood collection for enzymatic analysis of (AST, ALP, ALT, GGT, CK): -

A. Red top
B. EDTA
C. Oxalate
D. Fluoride

9. The following conditions can "physiologically" elevate serum alkaline phosphatase: -

A. Hyperparathyroidism
B. Diabetes
C. Third-trimester pregnancy
D. Nephrotic syndrome

10. Hyperparathyroidism is most consistently associated with: -

A. Hypocalcemia
B. Hypercalciuria
C. Hypophosphatemia
D. Metabolic alkalosis

11. The following condition is associated with hypernatremia: -

A. Diabetes insipidus
B. Hypoaldosteronism
C. Diarrhea
D. Acidemia

12. The major intracellular cation is: -

A. Potassium
B. Sodium
C. Chloride
D. Bicarbonate

13. Mean cell volume (MCV) is calculated using the following formula: -

A. (Hgb ÷ RBC) × 10
B. (Hct ÷ RBC) × 10
C. (Hct ÷ Hgb) × 100
D. (Hgb ÷ RBC) × 100

14. Sickle cell disorders are: -

A. Hereditary, intracorpuscular RBC defects
B. Hereditary, extracorpuscular RBC defects
C. Acquired, intracorpuscular RBC defects
D. Acquired, extracorpuscular RBC defects

15. The most commonly used blood grouping system is: -

A. Lewis blood grouping system

B. MNs blood grouping system

C. Kell blood grouping system

D. ABO blood grouping system

16. The following is unnecessary step in Phlebotomy procedure: -

A. Placing bandage over the punctured site

B. Recapping well the needle after use

C. Washing hands prior to venipuncture

D. Sterilizing the puncture site

17. The average lifespan of Red blood cells is: -

A. 120 days

B. 200 days

C. 190 days

D. 140 days

18. The following best represents the reference (normal) range for arterial Ph: -

A. 7.35–7.45
B. 7.42–7.52
C. 7.38–7.68
D. 6.85–7.56

19.The following is considered a normal hemoglobin: -

A. Carboxyhemoglobin
B. Methemoglobin
C. Sulfhemoglobin
D. Deoxyhemoglobin

20. The most appropriate adult reference range for fasting blood glucose: -

A. 40–105 mg/dL (2.22–5.82 mmol/L)

B. 60–140 mg/dL (3.33–7.77 mmol/L)

C. 65–99 mg/dL (3.61–5.50 mmol/L)

D. 75–150 mg/dL (4.16–8.32 mmol/L)

SECTION II: SHORT ANSWER QUESTIONS (30 MARKS)

1. Explain the mandatory screening tests carried out for blood donors (6 Marks)

2.Describe the functions of platelets in hemostasis and coagulation (6 Marks)

3.Explain briefly the most useful tests performed to detect hypothyroidism (6 Marks)

4. State Six (6) conditions which specimens for Clinical Chemistry analysis can be rejected in the Laboratory (6 marks)

5. State Six (6) conditions which may lead to hypocholesterolemia (6 marks)

SECTION III: LONG ANSWER QUESTION (20 MARKS)

1. Describe pre and post transfusion reactions (10 marks)

2.Discuss the following enzymes and their clinical implications (10 Marks)

(i) Alkaline phosphatase

(ii) Creatine Kinase

(iii) Lactate dehydrogenase