

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE AWARD OF
BACHELOR OF SCIENCE (NURSING)**

NURS 218: CLINICAL CHEMISTRY

STREAMS: BSc Nursing

TIME: 2 HOURS

DAY/ DATE:

INSTRUCTIONS TO CANDIDATES

- Do not write anything on the question paper.
- Mobile phones and any other reference materials are **NOT** allowed in the examination room.
- The paper has three (3) Sections. **ALL** the questions are compulsory
- Your answers for Section A (MCQs) should be on the first page of the answer Booklet.
- Number **ALL** your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.

SECTION A: MULTIPLE CHOICE QUESTIONS (20 marks)

1. The most appropriate method of assaying plasma proteins is:
 - a) Electrophoresis
 - b) Paper chromatography
 - c) Colorimetric
 - d) Radioimmunoassay
2. To avoid putting patients on unnecessary treatment, the biochemical test used in the diagnosis should have a high:
 - a) Specificity
 - b) Sensitivity
 - c) Precision
 - d) Accuracy

3. To get serum, the technologist should collect a blood specimen using a vacutainer with which colored stopper:
 - a) Gray
 - b) Gold
 - c) Red
 - d) Lavender
4. The most important buffer in the extracellular fluid is:
 - a) Phosphate
 - b) Histidine
 - c) Ammonia
 - d) Bicarbonate
5. A blood gas analysis returned the following results: Ph-7.4; p CO₂ -10; pO₂ -14; SBC-29. The correct diagnosis for this patient is:
 - a) Uncompensated metabolic alkalosis
 - b) Partially compensated metabolic alkalosis
 - c) Fully compensated respiratory acidosis
 - d) Uncompensated respiratory acidosis
6. Respiratory acidosis is mainly compensated through:
 - a) Hyperventilation
 - b) Hypoventilation
 - c) Retention of bicarbonate
 - d) Excretion of bicarbonate
7. The fluid compartment containing 33% of the body water is:
 - a) Intravascular
 - b) Intracellular
 - c) Interstitial
 - d) Extracellular
8. A cause of hypotonic fluid imbalance include:
 - a) Diarrhea
 - b) Cushing syndrome
 - c) Burns
 - d) Hemorrhage
9. An electrolyte result indicated a potassium level of 2.0 mmol/ L. This may be due to:
 - a) Rhabdomyolysis
 - b) Hypoaldosteronism
 - c) Metabolic acidosis
 - d) Insulin administration
10. A patient presented a urine specimen for evaluation. If the patient has an acute urinary tract infection, which of the following will be found in this urine specimen will aid in the diagnosis:

- a) Hematuria
 - b) Ketones
 - c) Nitrites
 - d) Leucocyte esterase
11. A metabolic feature of acute renal failure include:
- a) Metabolic acidosis
 - b) Hyperbilirubinemia
 - c) Hypokalemia
 - d) Hyponatremia
12. Elevated bilirubin levels in the urine is an indication of:
- a) Decreased uptake by the hepatocytes
 - b) Biliary tree obstruction
 - c) Decreased conjugation by the hepatocytes
 - d) Increased conjugation by the hepatocytes
13. Enzymes reflecting liver cell damage include:
- a) Creatine kinase
 - b) Lactate dehydrogenase
 - c) Alkaline phosphatase
 - d) Gamma-glutamyl transpeptidase
14. Secreted enzymes include:
- a) Clotting factors
 - b) Pseudocholinesterase
 - c) Pancreatic lipase
 - d) Transaminases
15. The predominant lactate dehydrogenase in serum is:
- a) LD1
 - b) LD2
 - c) LD4
 - d) LD5
16. All of the following enzymes are used in the assessment of Myocardial infarction EXCEPT:
- a) Creatine kinase
 - b) Lactate dehydrogenase
 - c) Alanine transaminase
 - d) Alkaline phosphatase
17. Lipid fraction with the highest cholesterol levels is:
- a) LDL
 - b) HDL
 - c) VLDL
 - d) Chylomicron
18. A specimen collected from a patient with an aneurysm due to atherosclerosis will most likely have elevated levels of:

- a) VLDL
- b) IDL
- c) HDL
- d) LDL

19. Which of the following is not a substrate for gluconeogenesis:

- a) Pyridoxine
- b) Glycerol
- c) Fatty acids
- d) Amino acids

20. Cortisol increases blood glucose levels by inducing:

- a) Lipolysis
- b) Glycogenolysis
- c) Protein catabolism
- d) Glycogenesis

SECTION B: SHORT ANSWER QUESTIONS (35 Marks)

- | | |
|---|---------|
| 1. Explain three(3) factors that influence the choice of a blood specimen | 6 marks |
| 2. State five (5) causes of metabolic acidosis | 5 marks |
| 3. Outline five (5) biochemical features of isotonic fluid loss | 5 marks |
| 4. Explain two (2) causes of serum enzyme increase | 4 marks |
| 5. State five(5) causes of uremia | 5 marks |
| 6. Describe three (3) lipid transport pathways indicating the lipoprotein
Used in each | 6 marks |
| 7. Enumerate four(4) causes of unconjugated hyperbilirunemia | 4 marks |

SECTION C: LONG ANSWER QUESTION (15 Marks)

1. A 20 year old college student is brought in the casualty department in an unconscious state. A panel of tests is ordered. However, the test results are found to be normal except for random glucose levels which are found to be 30 mmol/l. Explain five (5) other biochemical/metabolic disorders likely to be found in this patient 15 marks