

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

NURS 218: CLINICAL CHEMISTRY

STREAMS: BSC NURSING

TIME: 2 HOURS

DAY/ DATE: MONDAY 05/07/2021

8.30 A.M. – 10.30 A.M.

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 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) Hypermnatremia
- 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)
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