CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

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

NURS 218: CLINICAL CHEMISTRY

STREAMS: BSc Nursing   **TIME: 2 HOURS**

DAY/DATE: THURSDAY 3/12/2020   **2.30 P.M -4.30 P.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. A biochemical test is able to identify individuals without a disease if it is absent. This test can be said to be:
   a) Precise
   b) Accurate
   c) Sensitive
   d) Specific
2. The most appropriate method for analyzing iso-enzymes is:
   a) Electrophoresis
   b) Enzymatic
   c) Paper chromatography
   d) Spectrophotometer
3. The advantage of using whole blood as a specimen over other specimens is that it:
   a) Is easy to collect
   b) Most machines are designed to use it
   c) Has a short turn- around time
   d) Can be stored for longer period

4. Gray top tubes are usually used for collecting a blood specimen for analysing:
   a) Potassium
   b) Glucose
   c) Sodium
   d) Proteins
5. Major source of acid in the body is:
   a) Complete metabolism of fats and carbohydrates
   b) Ingestion of acid containing substances
   c) Oxidation of proteins and nucleic acids
   d) Incomplete metabolism of carbohydrates and fats
6. Which of the following is likely to decrease the blood pH:
   a) Hyperventilation
   b) Hypoventilation
   c) Retention of bicarbonate
   d) Excretion of hydrogen ions
7. A blood gas analysis returned the following results: PH: 7.25; SBC: 26 mmol/l; PCO2: 15 kPa. These findings are indicative of:
   a) Uncompensated metabolic acidosis
   b) Uncompensated respiratory acidosis
   c) Partially compensated metabolic acidosis
   d) Partially compensated respiratory acidosis
8. The most important amino acid in the regulation of acid base balance is:
   a) Glutamate
   b) Aspartate
   c) Histidine
   d) Valine
9. To prevent false elevation of potassium levels, the following precaution should be taken during sample handling:
   a) Use a large bore needle
   b) Apply a tight tourniquet
   c) Store the specimen overnight
   d) Vigorously shake the tube after sample collection
10. Distribution of water between the extracellular and intracellular compartment is regulated by:
    a) Extracellular potassium
    b) Extracellular sodium
    c) Hydrostatic pressure
    d) Oncotic pressure
11. Causes of hypokalemia include:
    a) Insulin deficiency
    b) Metabolic acidosis
    c) Erythrocyte haemolysis
    d) Hyperaldosteronism

12. A major stimulus of anti-diuretic hormone(ADH) release is:
    a) A rise in potassium levels in the ICF
    b) Increase in ECF water levels
    c) Stimulation of baroreceptors
    d) Increase in plasma osmolarity
13. Presence of nitrite in a urine specimen is indicative of:
    a) Urinary tract infection
    b) Increased renal glutaminase activity
    c) Inflammation of the glomerular basement membrane
    d) Increased synthesis
14. Uraemia is likely to be encountered in:
    a) Low protein intake
    b) Starvation
    c) Liver disease
    d) Over-hydration
15. In viral hepatitis:
    a) Unconjugated bilirubin is increased, urobilinogen is decreased
    b) Unconjugated bilirubin is decreased, urobilinogen is increased
    c) Both unconjugated bilirubin and urobilinogen are increased
    d) Both unconjugated bilirubin and urobilinogen are decreased
16. Liver enzymes indicative of liver cell damage include:
    a) Lactate dehydrogenase
    b) Alkaline phosphatase
    c) Creatine kinase
    d) Gamma Glutamyl Transpeptidase
17. Lipoprotein fraction with the highest triglyceride level is:
    a) LDL
    b) Chylomicron
    c) HDL
    d) VLDL
18. Total cholesterol levels of 10 Mmol/L is indicative of:
    a) Normal level
    b) Moderate hypercholesterolemia
    c) Severe hypercholesterolemia
    d) Very severe hypercholesterolemia
19. The predominant lactate dehydrogenase isoenzyme in the liver is:
    a) LD1
    b) LD2
    c) LD4
    d) LD5
20. Which of the following enzyme is NOT used in the assessment of cardiac function:

a) GGT
b) Creatine kinase
c) Lactate dehydrogenase
d) AST

SECTION B: SHORT ANSWER QUESTIONS (35 Marks)

1. Explain the two (2) groups of biochemical tests   [4 marks]

2. State the two(2) physiologic buffers indicating how each function to ensure acid-base balance

   in the body   [5 marks]

3. Explain three(3) factors that may result in increased urinary potassium loss   [6 marks]

4. Enumerate four(4) effects of hypotonic water loss   [4 marks]

5. Explain three (3) lipid transport processes in the plasma   [6 marks]

6. Classify enzymes giving an example of each   [6 marks]

7. Explain two(2) types of diabetes mellitus   [4 marks]

SECTION C: LONG ANSWER QUESTIONS (15 Marks)

1. Using appropriate examples, explain five(5) causes of pre-analytic sampling error and how

   you would mitigate each   [15 marks]

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