



(University of Choice)  
**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2022/2023 ACADEMIC YEAR**

**FIRST YEAR THIRD TRIMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE IN NURSING  
DISTANCE LEARNING**

**COURSE CODE: NCD 131**

**COURSE TITLE: CLINICAL CHEMISTRY**

**DATE: Thursday 13<sup>th</sup> April, 2023 TIME: 3:00PM-6:00PM**

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**INSTRUCTIONS TO CANDIDATES**

This paper consists of three sections:

- i. Section A – Multiple Choice Questions
- ii. Section B – Short Answer Question
- iii. Section C – Long Answer Question.

Answer all questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over. ►

**Section A: Multiple Choice Questions (20 marks)**

*Choose the most suitable choice, only one choice is correct*

1. The enzyme we monitor for heart health found in heart muscle is called:
  - a. Creatinine kinase
  - b. Creatinine
  - c. Troponin
  - d. Creatine kinase
2. A myocardial infarction is the technical term for:
  - a. Inflammation of the myocardium
  - b. Inflammation of the pericardium
  - c. Inflammation of the endocardium
  - d. A heart attack
3. CPK-MB is no longer evident upon testing approximately:
  - a. 3 days later
  - b. 2 days later
  - c. 4 days later
  - d. a week later
4. troponin remains detectable for \_\_\_\_\_ days following an acute MI
  - a. 14
  - b. 7
  - c. 21
  - d. 5
5. CPK-MB generally appears in just \_\_\_\_\_ hours following an acute MI onset
  - a. 3-6 hours
  - b. 5-8 hours
  - c. 6-8 hours
  - d. 2-4 hours
6. An increase in plasma potassium levels is properly called
  - a. hyperpotassemia.
  - b. hyperpotasseplasmia.
  - c. hyperkalemia.
  - d. hypercalcemia.
7. Excess potassium ions are eliminated from the body by the
  - a. sweat glands.
  - b. kidneys.
  - c. liver.
  - d. digestive system.
8. A hormone that helps to regulate the sodium ion concentration of the blood is
  - a. cortisol.
  - b. parathormone.
  - c. somatotropin.
  - d. aldosterone.
9. The most important factor affecting the pH of plasma is the concentration of
  - a. lactic acid.
  - b. organic acids.
  - c. carbon dioxide.
  - d. hydrochloric acid.
10. The primary role of the carbonic acid-bicarbonate buffer system is to
  - a. buffer carbonic acid formed by carbon dioxide.
  - b. prevent pH changes caused by organic and fixed acids.

- c. buffer the urine.
  - d. increase the amount of carbonic acid during ventilation.
11. Prolonged vomiting of the stomach's contents can result in
- a. respiratory acidosis.
  - b. respiratory alkalosis.
  - c. metabolic acidosis.
  - d. metabolic alkalosis.
12. The normal pH range for most body fluids is \_\_\_\_\_.
- a. 7 to 8B
  - b. 7.5 to 8
  - c. 7.25 to 7.75
  - d. 7.38 to 7.4
13. Abnormal fat and amino acid metabolism may lead to the condition called
- a. ketoacidosis.
  - b. lactic acidosis.
  - c. metabolic alkalosis.
  - d. respiratory acidosis.
14. Normal removal of excess water in urine is known as
- a. diuresis.
  - b. diuretics.
  - c. osmotic diuresis.
  - d. filtration.
15. Creatinine clearance is best used for
- a. Glomerulonephritis
  - b. Renal failure
  - c. Minor renal impairment
  - d. Cystitis
16. To measure glomerular filtration you need a substance that is
- a. Has a limited filtration
  - b. Exogenous
  - c. Endogenous
  - d. Reabsorbed by renal tubules
17. Normal range of serum urea in adult is
- a. 2.5-7.7 mmol/L
  - b. 3.6-6.6 mmol/L
  - c. 3.6-8.8 mmol/L
  - d. 2.5-6.6 mmol/L
18. Which of the following marker is used for the differential diagnosis of obstructive jaundice?
- a. Lactate dehydrogenase
  - b. Creatine Kinase
  - c. Carbonic anhydrase
  - d. 5'- Nucleotidase
19. All of the following statement is true concerning urobilinogen, Except:
- a. Produced by oxidative action of intestinal bacteria.
  - b. Undergoes significant enterohepatic circulation.
  - c. Urinary levels increased in biliary obstruction.
  - d. Fecal levels decreased in biliary obstruction.
20. Galactosemia is caused by a deficiency of the enzyme responsible for galactose metabolism. Name the enzyme. Please select one correct answer from the following options:
- a. Galactokinase
  - b. Galactose 1- phosphate Uridyl transferase

- c. UDP-4- Epimerase
- d. Galactose dehydrogenase

**Section B Short Answer Question (40 marks)**

1. Explain the renal acid base control mechanisms (8marks)
2. Explain the key indication for renal tests (8marks)
3. Explain the potential uses of tumor makers
4. Describe the body water compartment and associated electrolytes (8marks).
5. Outline the common cardiac biomarker (8marks).

**Section C Long Answer Questions (40 marks)**

1. 77 year-old male patient came to the clinic with sudden lower back pain, a serum creatinine analysis was done and the serum creatinine level was 0.55mg/dL, calculate the glomerular filtration rate knowing that the patient's body weight is 63kg. (K= 1.23, to convert mg/dL to  $\mu\text{mol/L}$  we need to multiply by 88.4) (20marks)
2. Discuss nursing management of patient with potassium imbalances (20marks)