



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**UNIVERSITY EXAMINATIONS**

**2023/2024 ACADEMIC YEAR  
MAIN EXAMINATIONS  
MAIN /KAKUMA CAMPUSES**

**FIRST YEAR FIRST SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE IN HUMAN NUTRITION AND  
DIETETICS**

**COURSE CODE: NUR 104**

**COURSE TITLE: MEDICAL BIOCHEMISTRY**

**DATE: 13/12/2023**

**TIME: 8.00 A.-M-10.00 A.M**

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**INSTRUCTIONS TO CANDIDATES**

SECTION A: ANSWER ALL QUESTIONS [10 MARKS

SECTION B: ANSWER ALL QUESTIONS [30 MARKS]

SECTION C: ANSWER ANY TWO QUESTIONS [30 MARKS]

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

## SECTION A: MULTIPLE CHOICE QUESTIONS [10 MARKS]

[ANSWER ALL QUESTIONS FROM THIS SECTION]

1. The risk factor for type I diabetes include the following **EXCEPT**:
  - A. Diet
  - B. Genetic
  - C. Autoimmune
  - D. Environmental
2. Which of the following ions forms the main constituent of extracellular fluid?
  - A. Sodium ions.
  - B. Magnesium ions.
  - C. Potassium
  - D. Lead
3. Untreated hyperglycoevia may lead to all the following complication **EXCEPT**:
  - A. Hyperosmolar syndrome
  - B. Vitiligo
  - C. Diabetes acidosis
  - D. Coma
4. Organic cofactors of enzymes are commonly referred to as:
  - A. Holoenzymes
  - B. Apoenzymes
  - C. Allosteric inducers
  - D. Coenzymes
5. Which of the following is **NOT** the function of haemoglobin?
  - A. To transport chemical messages in tissues
  - B. To bind and transport O<sub>2</sub> to tissues
  - C. To bind and transport protons to tissues
  - D. To bind and transport CO<sub>2</sub> from tissues
6. Glycolytic pathway regulation involves:-
  - A. Allosteric stimulation by ADP
  - B. Allosteric inhibition by ATP

- C. Feedback, or product, inhibition by ATP
  - D. All of the above
7. Which of the following is an example of a 5 – carbon sugar?
- A. Glucose
  - B. Ribose
  - C. Fructose
  - D. Sucrose
8. What elements are carbohydrates composed of?
- A. C, H, O & S
  - B. C, H, O & N
  - C. C, H, & O
  - D. C, H & N
9. Why is a saturated fat called “saturated” fat?
- A. The fat is saturated with water
  - B. The fatty acid carbon chains are saturated with hydrogen
  - C. The fatty acid chains can have more added
  - D. They saturate the body with fat when eaten
10. Iodine uptake test is used to ascertain the functioning of:
- A. Liver
  - B. Kidney
  - C. Thyroid gland
  - D. Adrenal gland

### **SECTION C: SHORT ANSWER QUESTIONS [20 MARKS]**

#### **[ANSWER ALL QUESTIONS FROM THIS SECTION]**

- 11. Differentiate between type 1 and 2 forms of diabetes mellitus. [5 marks]
- 12. Briefly describe the causes of disorders associated with vitamin D deficiency.[5 marks]
- 13. Differentiate between glycogenesis and glycolysis [5 marks]
- 14. Briefly explain why enzymes are necessary in the body [5 marks]

15. Highlight the significance of the biochemical concept of health [5 marks]

16. Describe the medical significance of defective urea cycle enzymes [5 marks]

**SECTION C: LONG ANSWER QUESTIONS [30 MARKS]**

**[ANSWER ANY TWO QUESTIONS IN THIS SECTION]**

17. Give an account of the metabolic defects arising from deficiencies of fat soluble vitamins [15 marks]

18. Describe the functions of iron and the disorders arising from its defective metabolism. [15 marks]

19. Describe renal function tests and their significance. [15 marks]