



(UNIVERSITY OF CHOICE)

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

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2023/2024 ACADEMIC YEAR**

**MAIN EXAMINATIONS**

**FIRST YEAR FIRST SEMESTER EXAMINATIONS  
FOR THE DIPLOMA**

**IN**

**HUMAN NUTRITION AND DIETETICS**

**COURSE CODE: DND 052**

**COURSE TITLE: BASIC BIOCHEMISTRY**

**DATE: 6TH/DECEMBER/2023 TIME: 2PM- 4 PM**

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**INSTRUCTIONS TO CANDIDATES**

Answer **ALL** questions in SECTION A and B

Answer only **TWO** questions in SECTION C

Read additional instructions under various sections

TIME: 2 HOURS

MMUST observes **ZERO** tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over



**SECTION A: ANSWER ALL QUESTIONS**

**(10 MARKS)**

1. \_\_\_\_\_ are the bonds found between a maltose molecule.
  - A. Glycosidic bonds
  - B.  $\alpha$  1-4 glycosidic bonds
  - C.  $\alpha$  1-6 glycosidic bonds
  - D. Glucose bonds
2. Which of the following amino acids contain sulphur in their distinctive group?
  - A. Methionine and cysteine.
  - B. Methionine and valine.
  - C. Phenylalanine and serine.
  - D. Glutamine and proline.
3. \_\_\_\_\_ and amylose are what compose starch.
  - A. Maltose
  - B. Glucose
  - C. Amylopectin
  - D. Sucrose
4. Which of the following is the genetic information carrier in the cell?
  - A. Deoxyribonucleic acid
  - B. Ribonucleic acid
  - C. Glutamic acid
  - D. Nucleic acid
5. Three of the following organs are most involved in lipid digestion, **EXCEPT**;
  - A. Kidneys
  - B. Liver
  - C. Mouth
  - D. Pancreas
6. Which of the following mineral is **NOT** biologically important in the human body?
  - A. Manganese
  - B. Copper
  - C. Lead
  - D. Iron



7. Biological membranes are made up of all of the following **EXCEPT**;
- A. Phospholipids
  - B. Phosphoric acids
  - C. Glycolipids
  - D. Proteoglycans
8. \_\_\_\_\_ is the main site for fatty acids synthesis
- A. Liver
  - B. Adipose tissue
  - C. Blood cells
  - D. Pancreatic tissue
9. The following protein is **NOT** used in the skeletal muscle tissue:
- A. Ferritin
  - B. Glucagon
  - C. Vasopressin
  - D. All the above
10. Which of the following is **TRUE** about RNAs in protein synthesis
- A. tRNA is transport RNA
  - B. mRNA is used to transfer messages
  - C. rRNA is rarely used in protein synthesis
  - D. None of the above.

**SECTION B: ANSWER ALL QUESTIONS**

**(30 MARKS)**

- 11. Differentiate between starch, cellulose and glycogen. (6 marks)
- 12. Highlight physiological functions of hormones. (6 marks)
- 13. Explain **THREE** nitrogenous base groups. (6 marks)
- 14. Explain the role of water in biological systems. (6 marks)
- 15. Outline **SIX** characteristics of enzymes. (6 marks)



**SECTION C: THE SECTION CONTAINS THREE QUESTIONS. ANSWER ANY TWO QUESTIONS** **(30 MARKS)**

16. Discuss the glycolytic pathway. (15 marks)
17. Describe the **FIVE** steps of  $\beta$ -oxidation. (15 marks)
18. Using relevant examples, discuss the functions of proteins. (15 marks)

