



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF HEALTH SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE**  
**PUBLIC HEALTH/COMMUNITY HEALTH AND DEVELOPMENT**  
**2<sup>ND</sup> YEAR 1<sup>ST</sup> SEMESTER 2024/2025 ACADEMIC YEAR**  
**MAIN CAMPUS**

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**COURSE CODE:** HBB 9203  
**COURSE TITLE:** MEDICAL BIOCHEMISTRY  
**EXAM VENUE:** STREAM: BSc Public/ Comm. Hlth & Dev  
**DATE:** 15/1/25 **EXAM SESSION:** 15-17.00 HRS  
**TIME:** 2.00 HOURS

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**Instructions:**

- 1. Answer all the questions in Section A and 2 questions in Section B.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

## Section A

### Question 1 ( 30 marks)

1. Give the four classes of biomolecules ( 2marks)
2. Define an enzyme and explain its role in biochemical reactions. (4 marks)
3. Describe the concept of enzyme specificity. (3 marks)
4. What is the difference between competitive and non-competitive inhibition of enzymes? ( 2 marks)
4. Describe the structure of a glycolipid and its role in cell membranes. ( 3 marks)
5. What the roles of proteins in the body (4 marks)
6. Describe classes of carbohydrates ( 4 marks)
7. Describe the structure of a nucleotide. ( 4 marks)
8. Describe two biological functions of lipids. ( 4 Marks)

## Section B

### Question 2

- a) Discuss the difference between glycolysis and gluconeogenesis. ( 12 marks)
- b) Explain the classification of carbohydrates and their biological significance. ( 8marks)

### Question 3.

- a. Describe the structure of nucleotides and nucleic acids. Explain the biosynthesis of purines and pyrimidines, highlighting the key enzymes involved and the regulation of these pathways. (20 marks)

### Question 4

- a. Explain significance of blood sugar level ( 10 marks)
- b. Discuss factors that affect insulin level in the body. ( 10 marks)

### Question 5

- a. Differentiate between saturated and unsaturated fatty acids ( 6 marks)
- b. Discuss any 2 biochemical pathways involved in energy production. ( 14 marks)