



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF SCIENCE AND TECHNOLOGY EDUCATION

DEPARTMENT OF SCIENCE, MATHEMATICS AND TECHNOLOGY EDUCATION

BIOCHEMISTRY PST 1136

Main Examination Paper

NOVEMBER 2024

This Examination Paper consists of 5 pages

Time Allowed: 3 hours

Total Marks: 100

Internal Examiner: MRS. S. NCUBE

External Examiner: DR. P MANYANGA

### INSTRUCTIONS

1 Question ONE is compulsory. Choose ANY other FOUR questions.

2. Each question carries 20 marks.

3. Begin each question on a new page.

### MARK ALLOCATION

QUESTION	MARKS
1.	20
2.	20
3.	20
4.	20
5	20
6	20
TOTAL	100

### QUESTION 1

- 1(a) Draw and describe the structure of an amino acid. (10 Marks)
- (b) Classify amino acids based on polarity and their chemical properties. (10 Marks)

### QUESTION 2

2. Describe the structure of a cell membrane stating its components and their functions. (20 Marks)

### QUESTION 3

3. Using examples, describe the processes involved in transport across the cell membrane. (20 Marks)

### QUESTION 4

4. Outline the process of:
- (a) Glycolysis
- (b) Krebs cycle (20 Marks)

### QUESTION 5

5. Explain the following processes:
- (a) Glycogenesis
- (b) Gluconeogenesis
- (c) Fatty acid synthesis
- (d) Oxidative phosphorylation
- (e) Link reaction (20 Marks)

### QUESTION 6

6. Describe the process of fatty acid metabolism and its regulation. (20 Marks)

**END OF QUESTION PAPER**