

UNIVERSITY OF SWAZILAND**SUPPLEMENTARY EXAMINATION PAPER 2005****TITLE OF PAPER BIOCHEMISTRY & CELL BIOLOGY****COURSE CODE: B203****TIME ALLOWED: THREE HOURS**

INSTRUCTIONS:

1. **ANSWER FOUR QUESTIONS, TWO FROM EACH SECTION**
2. **EACH QUESTION CARRIES TWENTY FIVE (25) MARKS**
3. **ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE**

SPECIAL REQUIREMENTS:**USE SEPARATE EXAM FOLDERS FOR SECTIONS A & B.**

**THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS
BEEN GRANTED BY THE INVIGILATORS**

QUESTION 1

- (a) What are biomolecules? (7 marks)
(b) Explain concisely the essential features of Glycolysis. (12 marks)
(c) What is the significance of this process to living organisms. (6 marks)
- [TOTAL MARKS = 25]

QUESTION 2

- (a) What are the structural features of the common fatty acids? (7 marks)
(b) Explain with examples the differences between saturated and unsaturated fatty acids. (12 marks)
(c) Describe briefly, the structure, properties and functions of phospholipids in eukaryotic cells. (6 marks)
- [TOTAL MARKS = 25]

QUESTION 3

Discuss with examples the structural levels in proteins. [25 MARKS]

QUESTION 4

- (a) Explain each of the following terms:
(i) Apoenzyme (ii) Co-enzyme (iii) Co-factor (6 marks)
(b) What are enzyme inhibitors? (7 marks)
(c) Explain briefly how some heavy metals and poisons inhibit the action of enzymes in living organisms. (12 marks)
- [TOTAL MARKS = 25]

QUESTION 5

- (a) Describe the pentose phosphate pathway and explain the role of the enzymes involved in this process. (20 marks)
(b) What is the significance of this process to living organisms. (5 marks)
- [TOTAL MARKS = 25]

QUESTION 6

Explain in detail how adenosine triphosphate (ATP) is used and generated in photosynthesis.

[25 MARKS]