

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER 2008

TITLE OF PAPER: **BIOCHEMISTRY & CELL BIOLOGY**

COURSE CODE: **B203**

TIME ALLOWED: **THREE HOURS**

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

SPECIAL REQUIREMENTS:

NONE

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

QUESTION 1

- (a) What are carbohydrates? (9 marks)
- (b) Explain concisely the essential features of Glycolysis and its significance to living organisms. (18 marks)

[TOTAL MARKS = 25]

QUESTION 2

- (a) Distinguish between globular and fibrous proteins with examples. (7 marks)
- (b) Discuss the structural levels in proteins. (18 marks)

[TOTAL MARKS = 25]

QUESTION 3

Write a concise essay on Nucleic Acids.

[25 MARKS]

QUESTION 4

- (a) Briefly account for the properties and function of enzymes. (7 marks)
- (b) Discuss the ways by which enzymes activities are affected by temperature, hydrogen ions concentration (pH) and substrate concentration in living systems. (18 marks)

[TOTAL MARKS = 25]

QUESTION 5

- (a) Explain concisely the essential features of the β (Beta) -oxidation pathway and its significance to living organisms. (17 marks)
- (b) Explain the importance of Acetyl co-enzyme A in metabolism. (8 marks)

[TOTAL MARKS = 25]

QUESTION 6

Write concise essays on **TWO** of the following:

- (a) Phospholipids and Lipoproteins. (12½ marks)
- (b) Light reactions of photosynthesis. (12½ marks)
- (c) Gluconeogenesis. (12½ marks)

[TOTAL MARKS = 25]