



1ST SEM. 2007/2008

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: **BACHELOR OF SCIENCE IN
AGRONOMY; BACHELOR OF
SCIENCE IN ANIMAL SCIENCE;
BACHELOR OF SCIENCE IN FOOD
SCIENCE, NUTRITION AND
TECHNOLOGY; AND BACHELOR
OF SCIENCE IN HORTICULTURE
YEAR II**

COURSE CODE: **APH 203**

TITLE OF PAPER: **BIOCHEMISTRY**

TIME ALLOWED: **TWO (2) HOURS**

INSTRUCTIONS: **ANSWER ANY 4 QUESTIONS**

**THIS PAPER MAY NOT BE OPENED UNTIL THE CHIEF
INVIGILATOR HAS GRANTED PERMISSION.**

QUESTION 1

Describe and illustrate the following:

- a) Eicosanoids (14 Marks)
- b) Hydrogen bonding of water molecules (11 Marks)

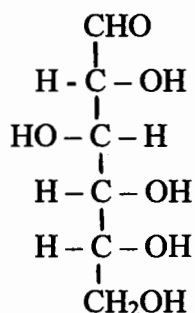
QUESTION 2

Using structures to illustrate your answers explain the major differences between the following:

- a) Glycosidic bond and peptide bonds (8 Marks)
- b) Reducing and non reducing sugars (9 Marks)
- c) Nucleoside and Nucleotide (8 Marks)

QUESTION 3

Study the structure of the biomolecule shown below and answer the following questions:



- a) Identify the biomolecule (1 Marks)
- b) Illustrate and identify the tautomer of the biomolecule (4 Marks)
- c) Illustrate and identify the amino sugar of the biomolecule (4 Marks)
- d) Illustrate and identify the alditol of the biomolecule (4 Marks)
- e) Illustrate and identify the anomeric pair of the biomolecule (6 Marks)
- f) Illustrate and identify the disaccharide made by the biomolecule and its tautomer. (6 Marks)

QUESTION 4

a). Briefly discuss three advantages of using enzymes as biological catalysts. (9 Marks)

b). Discuss how the following may affect enzymic reaction rate:

- i) temperature
- ii) pH
- iii) Enzyme concentration
- iv) Substrate concentration (16 Marks)

QUESTION 5

Using structures to support your answer, briefly describe two examples of:

- a) Unsaturated fatty acids (5 Marks)
- b) Sterol lipids (5 Marks)
- c) Non protein amino acids (5 Marks)
- d) Structural polysaccharides (5 Marks)
- e) Water soluble vitamins (5 Marks)