



2007/2008

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY 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

- a) Using structures to illustrate your answer, describe the following:-
- i. Two sulphur containing amino acids (8 Marks)
 - ii. Two essential amino acids (8 Marks)
- b) Explain and illustrate the major differences between waxes and triacylglycerides. (9 Marks)

QUESTION 2

- a) Explain and illustrate the major differences amongst the following cells: virion, eukaryotic, prokaryotic. (15 Marks)
- b) Describe the metabolic roles of the following parts of the cell: (10 Marks)
- i) the mitochondrion
 - ii) the cytosol
 - iii) the rough endoplasmic reticulum
 - iv) the smooth endoplasmic reticulum
 - v) the cell membrane.

QUESTION 3

Using structures to illustrate your answer, explain the following and state their natural sources. Give one example in each case:

- a) Amino sugars (5 Marks)
- b) Sugar alcohols (5 Marks)
- c) Deoxy sugars (5 Marks)
- d) Essential fatty acids (5 Marks)
- e) Phospholipids (5 Marks)

QUESTION 4

- a). Explain why primates can not synthesize ascorbic acid from glucose. Illustrate your answer. (15 Marks)
- b) Describe two types of vitamin D (10 Marks)

QUESTION 5

- a) Define the following (10 Marks)
- i) Iso electric point
 - ii) Water activity
 - iii) Amphipathic substances
 - iv) Aldoses
 - v) Sugar epimers
- b) Discuss enzyme inhibitors (15 Marks)