



**2005/2006**

**UNIVERSITY OF SWAZILAND**

**SUPPLEMENTARY EXAMINATION PAPER**

**PROGRAMME:** **DIPLOMA IN AGRICULTURE I,  
DIPLOMA IN AGRICULTURE  
EDUCATION YEAR I, REMEDIAL  
AGRICULTURE AND REMEDIAL  
AGRICULTURE EDUCATION**

**COURSE CODE:** **APH 103**

**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**

Using structures to illustrate your answers, write short notes about:

- a) Amino sugars **(7 Marks)**
- b) Sugar alcohols **(7 Marks)**
- c) Deoxy-sugars **(5 Marks)**
- d) Saturated fatty acids **(6 Marks)**

**QUESTION 2**

Using structures to illustrate your argument: **(25Marks)**

Explain that ascorbic acid can be produced from glucose

**Or**

Explain that Cholesterol can produce a vitamin

**QUESTION 3**

- a) Distinguish between competitive, non-competitive and uncompetitive inhibition of enzymes. **(15 Marks)**
  
- b) List the **SIX** major classes of enzymes as put forward by the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology. **(6 Marks)**
  
- c) Distinguish between the lock and key and the induced fit models of enzyme catalysis. **(4 Marks)**

**QUESTION 4**

- a) Describe the following structures of protein:
  - i) Primary structure
  - ii) Secondary structure
  - iii) Tertiary structure **(15 Marks)**
  
- b) The following are some of the basic features of the genetic code: **sequential; non-overlapping; non-ambiguous, universal and buffered**. Explain each of these terms. **(10 Marks)**

**QUESTION 5**

a) For each class of compounds given below, give one example and explain its function:

i) Nucleotide diphosphates

ii) Nucleotide triphosphates

iii) Cyclic nucleotides

iv) Polynucleotide

v) Ribonucleic acid (RNA)

**(15 Marks)**

b) Write short notes on:

i) Substrate inhibition

ii) Feedback inhibition

**(10 Marks)**