



**1<sup>ST</sup> SEM. 2013/2014**

**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME:** B. Sc. AGRON.; B.Sc. ANIMAL  
SCIENCE; B.Sc. HORT. & B.Sc.  
FSNT II.

**COURSE CODE:** AS 202

**TITLE OF PAPER:** BIOCHEMISTRY

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

**INSTRUCTIONS:** ANSWER ANY 4 QUESTIONS.

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

**QUESTION 1**

Using structures to support your answer, describe the following relationship amongst carbohydrates

- a) Sugar anomers (5 Marks)
- b) Sugar epimers (5 Marks)
- c) Sugar tautomers (5 Marks)
- d) Sugar enantiomers (5 Marks)
- e) Sugar alditols (5 Marks)

**QUESTION 2**

- a) Briefly discuss three different types of cells found in organisms (15 Marks)
- b) List 2 metabolic functions of the following cellular parts or organelles (10 Marks)
  - i) Mitochondrion
  - ii) Cell membrane
  - iii) Endoplasmic reticulum
  - iv) Cytosol
  - v) Nucleus

**QUESTION 3**

- a) Describe and illustrate five energy producing steps in the TCA cycle (25 Marks)

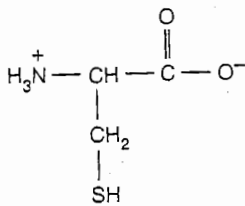
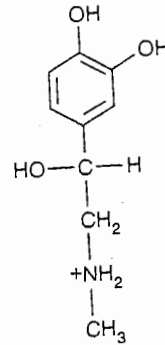
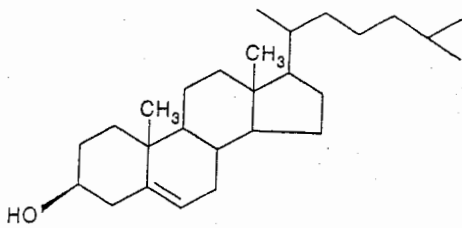
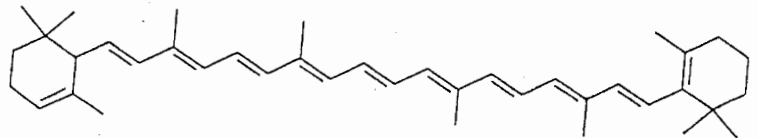
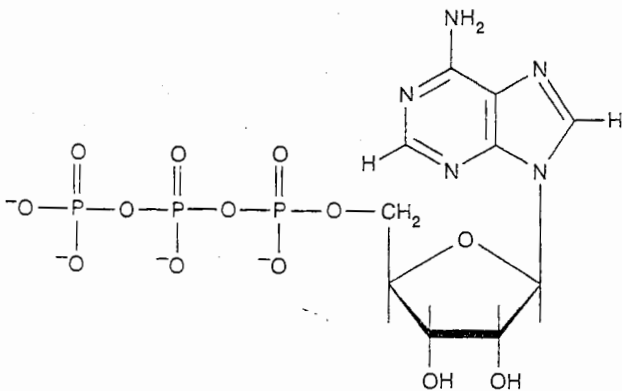
**QUESTION 4**

Using structures to illustrate your answer, explain:

- a) The major differences between RNA and DNA (15 Marks)
- b) Sterol and eicosanoid lipids (10 Marks)

**QUESTION 5**

Identify and write brief notes on the biomolecules presented below. (25 Marks)

**A (4 Marks)****B (6 Marks)****C (5 Marks)****D (4 Marks)****E (6 Marks)**