



**1<sup>ST</sup> SEM. 2012/2013**

**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.**

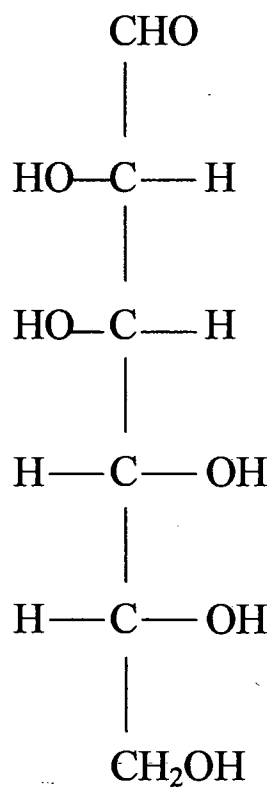


Figure 1

### QUESTION 1

Using structures to support your answer, explain 5 reasons justifying that the statement 'carbohydrates are watered carbons' is not precise. **(25 Marks)**

### QUESTION 2

Describe with illustrations the following:

- a. The Urea cycle **(15 Marks)**
- b. Sterol steroids **(10 Marks)**

### QUESTION 3

Describe and illustrate the following

- a. Maintenance of the tertiary structure of proteins **(10 Marks)**
- b. Aldol condensation **(8 Marks)**
- c. A water soluble vitamin **(6 Marks)**

### QUESTION 4

- a. Briefly discuss the effect of: Temperature; pH; and Substrate concentration on enzymic activity **(13 Marks)**
- b. Distinguish and illustrate the differences between nucleoside triphosphate and nucleoside diphosphate **(13 Marks)**

### QUESTION 5

- a. Identify and describe the biomolecule shown in Figure 1. **(5 Marks)**
- b. Describe and illustrate a tautomer produced from the biomolecule shown in Figure 1. **(5 Marks)**
- c. Describe and illustrate the epimer produced by the biomolecule shown in Figure 1 **(5 Marks)**
- d. Describe and illustrate a sugar acid and a sugar alcohol produced by the epimer given in (c) **(10 Marks)**