



**1<sup>ST</sup> SEM. 2011/2012**

## **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**

Describe with illustrations the glycolysis pathway in an animal cell. **(25 Marks)**

**QUESTION 2**

Giving two example in each case, describe and illustrate the following Biomolecules.

- a. Essential fatty acids **(4 Marks)**
- b. Non-essential amino acids **(4 Marks)**
- c. Fat soluble vitamins **(4 Marks)**
- d. Amino Sugars **(7 Marks)**
- e. Eicosanoids **(6 Marks)**

**QUESTION 3**

Describe and illustrate the major differences between:

- a. Glucitol and glucuronic acid **(10 Marks)**
- b. *Cis* and *trans* fatty acids **(8 Marks)**
- c. Aldose sugar and ketose sugar **(7 Marks)**

**QUESTION 4**

- a. Identify and describe the biomolecule shown in Figure 1. **(5 Marks)**
- b. Describe and illustrate two tautomers of the biomolecule shown in Figure 1 **(10 Marks)**
- c. Describe and illustrate a disaccharide formed by the biomolecule shown in Figure 1 and one of its tautomer. **(10 Marks)**

**QUESTION 5**

Describe with illustrations the synthesis of sulfur containing amino acids in Plants, and animals. **(25 Marks)**

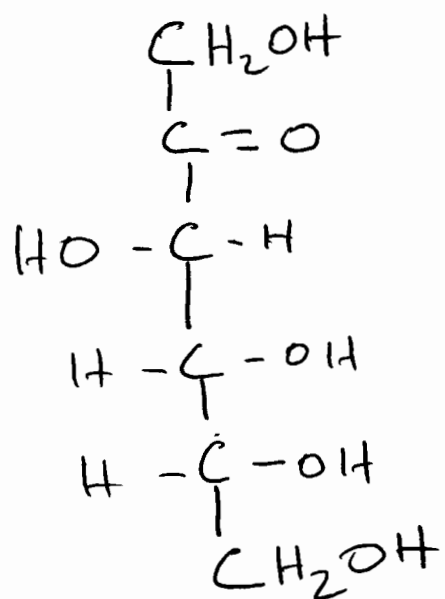


Figure 1