



1<sup>ST</sup> SEM. 2016/2017

# UNIVERSITY OF SWAZILAND

## FINAL EXAMINATION PAPER

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

**COURSE CODE:** AS 202/ASC 203

**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 and illustrate the glycolysis pathway in eukaryotic cell. **(25 Marks)**

**QUESTION 2**

Giving two examples in each case, describe and illustrate the following biomolecules.

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

**QUESTION 3**

Describe and illustrate the major differences between:

- a. Sugar acids and sugar alcohols **(10 Marks)**
- b. Nucleosides and nucleotides **(6 Marks)**
- c. Eicosanoids and triacylglycerides **(9 Marks)**

**QUESTION 4**

- a. Identify and describe the biomolecule shown in Figure 1. **(5 Marks)**
- b. Describe and illustrate the epimer 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 epimer. **(10 Marks)**

**QUESTION 5**

Describe and illustrate the synthesis of sulfur containing amino acids in plants, and animals. **(25 Marks)**

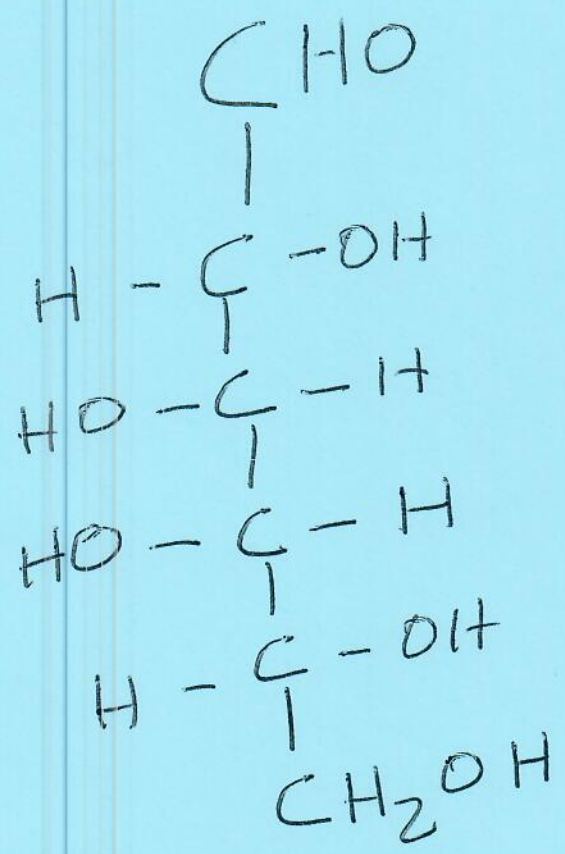


Figure 1