

1ST SEM. 2017/2018

UNIVERSITY OF SWAZILAND

MAIN 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 FOUR (4) QUESTIONS.

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

QUESTION 1

Explain and illustrate carbohydrate catabolism in the cytosol. **(25 Marks)**

QUESTION 2

Explain and illustrate the significance of peptide bonds in proteins and phosphate ester bonds in nucleic acids. **(25 Marks)**

QUESTION 3

a) Briefly discuss 4 factors affecting enzymic reaction rate **(10 Marks)**

b) Following qualitative test of solutions, the results in Table 1 were recorded in Table 1; Identify the following biomolecules from the given tests and justify your answer. **(15 Marks)**

Biomolecules: Fructose; Mannose; Arginine; Albumin; Sucrose;

Table 1: Qualitative tests results

Test	Sample A	Sample B	Sample C	Sample D	Sample E
Molisch Test	+	+	-	+	-
Biuret Test	-	-	+	-	-
Benedict Test	-	+	-	+	-
Barfoed Test	-	+	-	+	-
Seliwanoff Test	+	-	-	+	-
Sakaguchi Test	-	-	+	-	+

QUESTION 4

Using structures to illustrate your answer, compare and contrast the following:

a) De-oxy sugars and amino sugars **(8 Marks)**

b) Sugar acids and sugar alcohols **(8 Marks)**

c) Sterols and prostaglandins **(9 Marks)**

QUESTION 5

- a) Identify and briefly describe the biomolecules shown in Figures 1 and 2 (5 Marks)
- b) Describe and illustrate a disaccharide produced by the biomolecule in Figure 1 with α -glucose. (10 Marks)
- c) Explain and illustrate the peptide formed when the biomolecule in Figure 2 reacts with methionine. (10 Marks)

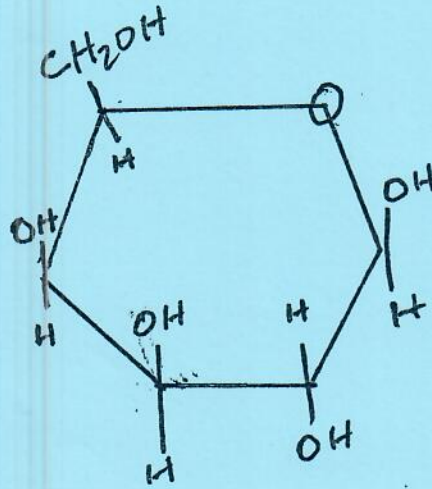


Figure 1

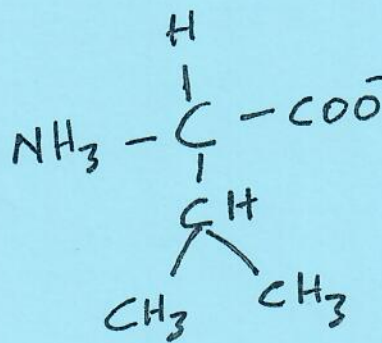


Figure 2