



1ST SEM. 2019/2020

UNIVERSITY OF ESWATINI

RE-SIT EXAMINATION PAPER

PROGRAMME: B. Sc. AGRONOMY; B.Sc. ANIMAL SCIENCE; B.Sc. ANIMAL SCIENCE DAIRY OPTION; B.Sc. HORTICULTURE; B.Sc. FOOD SCIENCE NUTRITION AND TECHNOLOGY AND B.Sc. TEXTILE APPAREL DESIGN AND MANAGEMENT YEAR 2

COURSE CODE: AS 202/ASC203

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

Using structures to illustrate your answer explain the differences between:

- a) An eicosanoid and a sterol. (8 Marks)
- b) An amino sugar and an amino acid. (10 Marks)
- c) A ribonucleoside and a deoxy-ribonucleoside. (7 Marks)

QUESTION 2

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

QUESTION 3

Following qualitative analysis of biomolecules, the results presented in Table 1 were obtained:

Table 1 Qualitative tests results

Test	Sample A	Sample B	Sample C	Sample D	Sample C
Barfoid	+	-	-	-	-
Buiret	-	-	+	-	-
Molich	+	+	-	+	-
Selliwanoff	+	-	-	+	-
Benedict	+	+	-	-	-
Sakaguchi	-	-	-	-	+
Heler's	-	-	+	-	-

- a) Which sample contains the following biomolecules, and justify your answer: sucrose; serum albumin; lactose; arginine; fructose. (12 Marks)
- b) Using structure to illustrate your answers, explain:
 - i) Essential amino acids. (5 mark)
 - ii) Essential fatty acids. (3 Marks)
 - iii) Ribonucleotides. (5 Marks)

QUESTION 4

Describe and illustrate the following:

- a) Sugar alditols. (5 Marks)
- b) Uronic acids. (5 Mark)
- c) Pyrimidines. (5 Marks)
- d) Vitamin precursors. (5 Marks)
- e) Catecholamine. (5 Marks)

QUESTION 5

- a) Explain and illustrate the following:
 - i) Transamination. (8 Marks)
 - ii) Aldol condensation. (7 Marks)
- b) Explain and illustrate the maintenance of the tertiary structure of proteins. (10 Marks)