



1ST SEM. 2019/2020

UNIVERSITY OF ESWATINI

FINAL 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

Briefly discuss:

- a) Three biological functions of water in living things. (12 Marks)
- b) Three functions of carbohydrates in animals. (8 marks)
- c) Two function of proteins in animals. (5 Marks)

QUESTION 2

- a) Discuss the metabolic functions of the mitochondrion and of the Golgi apparatus in the Eukaryotic cell. (4 Marks)
- b) Briefly describe the four different types of nucleic acid found in viruses. (8 Marks)
- c) Using structures to illustrate your answers, describe two Sulphur containing amino acids ~~amino acids~~. (8 Marks)
- d) Using structures to illustrate your answer, explain mono unsaturated fatty acids. (5 Marks)

QUESTION 3

- a) Using structures to illustrate your, describe and discuss the significance of glycosidic bonds ^{answer} and peptide bonds in biopolymers. (10 Marks)
- b) Explain four major differences between DNA and RNA. (8 Marks)
- c) Describe and illustrate cholesterol. (7 Marks)

QUESTION 4

- a) Briefly describe and illustrate enolization OR epimerisation in carbohydrates. (10 Marks)
- b) Discuss and illustrate the production two amino acids from metabolites of carbohydrate catabolism. (15 Marks)

QUESTION 5

- a) Identify the biomolecules presented on Figure 1. (5 Marks)
- b) Describe and illustrate the possible biopolymers that can be made from:
- (i) Figure 1A (4 Marks)
 - (ii) Figure 1B (4 Marks)
 - (iii) Figure 1C (4 Marks)
- c) Explain and illustrate the production of a water soluble vitamin by any biomolecule from Figure 1. (4 Marks)
- d) Explain and illustrate the production of a wax by any biomolecule from Figure 1. (4Marks)