



1<sup>ST</sup> SEM. 2018/2019

**UNIVERSITY OF ESWATINI**

**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 4 QUESTIONS.

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

**QUESTION 1**

Explain and illustrate energy producing steps in the TCA cycle. **(25 Marks)**

**QUESTION 2**

Explain and illustrate the significance of glycosidic bonds in carbohydrates and Hydrogen bonds in water molecules. **(25 Marks)**

**QUESTION 3**

Describe and illustrate 5 major differences between eukaryotic and prokaryotic cells. **(25 Marks)**

**QUESTION 4**

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

- a. Waxes and triacylglycerides **(6 Marks)**
- b. Sugar anomers and sugar epimers **(9 Marks)**
- c. Catecholamine and eicosanoids **(10 Marks)**

**QUESTION 5**

- a) Identify and briefly describe the biomolecules shown in Figure 1 and Figure 2. **(5 Marks)**
- b) Describe and illustrate a disaccharide produced by reaction of A  $\beta$ -D anomer of Figure 1 with  $\alpha$ -D glucose **(10 Marks)**
- c) Explain and illustrate the peptide formed when the biomolecule in Figure 2 reacts with serine. **(10 Marks)**

25

Figure 1

Figure 2