



# **MAASAI MARA UNIVERSITY**

## **REGULAR UNIVERSITY EXAMINATIONS 2018/2019 ACADEMIC YEAR THIRD YEAR SECOND SEMESTER EXAMINATIONS**

### **SCHOOL OF SCIENCE AND INFORMATION SCIENCES FOR THE DEGREE OF BACHELOR OF FORESTRY**

**COURSE CODE: FEM 3225**

**COURSE TITLE: PLANT BIOCHEMISTRY**

**DATE: 15<sup>th</sup> APRIL, 2019**

**TIME: 1100 - 1300HRS**

---

#### **INSTRUCTIONS**

ANSWER ALL QUESTIONS IN SECTION A AND ANY TWO IN SECTION B. ILLUSTRATE YOUR ANSWERS WITH SUITABLE DIAGRAMS AND GIVE EXAMPLES WHEREVER NECESSARY.

**SECTION A (30 marks) Answer ALL questions**

1. Explain why glycolysis important to living organisms. **(3 marks)**
2. Describe how ATP is synthesized in the Electron Transport System. **(3 marks)**
3. State the kinds of reactions the following classes of enzymes catalyze; **(3 marks)**
  - (a) Hydrolases **(1 mark)**
  - (b) Lyases **(1 mark)**
  - (c) Transferases **(1 mark)**
4. Explain how TCA cycle may function in the anabolic and catabolic functions of the cell. **(3 marks)**
5. Citing suitable examples, distinguish between a monosaccharide, a disaccharide, and a polysaccharide. **(3 marks)**
6. Explain the mechanism of activation of fatty acids prior to catabolism **(3 marks)**
7. Describe briefly the chemical groups found in every amino acid. **(3 marks)**
8. Explain the role of NAD<sup>+</sup> and FAD<sup>+</sup> co-enzymes in plants. **(3 marks)**
9. Explain the role of messenger RNA and ribosomes in protein synthesis **(3 marks)**
10. Illustrate the structural formula for glycerol and show how glycerol is involved in the formation of a lipid. **(3 marks)**

**SECTION B ANSWER ANY TWO QUESTIONS (40 MARKS)**

11. Discuss the distinct groups of secondary metabolites and their importance in plants. **(20 marks)**
12. Discuss nitrogen metabolism **(20 marks)**
13. Give an account of the process involved in beta oxidation of fatty acids. **(20 marks)**
14. Discuss the light dependent stage of photosynthesis **(20 marks)**

**//END**