



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: 15th 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⁺ and FAD⁺ 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)

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