MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR
FOURTH YEAR SECOND SEMESTER EXAMINATIONS

SCHOOL OF SCIENCE AND INFORMATION SCIENCES
FOR THE DEGREE OF BACHELOR OF SCIENCE (BOTANY) and
BACHELOR OF EDUCATION SCIENCE

COURSE CODE: BOT 415
COURSE TITLE: PLANT PHYSIOLOGY II

DATE: 16TH APRIL 2018 **TIME: 0830-1030HRS**

INSTRUCTIONS TO CANDIDATE

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;
   (a) Hydrolases **(1 mark)**
   (b) Lyases **(1 mark)**
   (c) Transferases **(1 mark)**
4. Explain how Tricarboxylic Acid (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 (40 MARKS) ANSWER ANY TWO QUESTIONS

11. Discuss the nitrogen fixation process and state its role in agriculture.
    (20 marks)
12. Discuss steps involved in beta oxidation of fatty acids. **(20 marks)**
13. Describe the distinct groups of secondary metabolites and their importance in plants. **(20 marks)**
14. Describe experimental procedures for detection of lipids and proteins in the laboratory. **(20 marks)**

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