



MAASAI MARA UNIVERSITY

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

**THE DEGREE OF BACHELOR OF SCIENCE AND
BACHELOR OF EDUCATION (SCIENCE)**

COURSE CODE: BOT 3209

COURSE TITLE: PLANT PHYSIOLOGY

DATE: 25TH APRIL, 2019

TIME: 1100 - 1300HRS

Instructions

Answer ALL questions in section A and any other TWO questions in section B. Illustrate your answers with diagrams and give examples where appropriate.

SECTION A(30 MARKS): Answer ALL questions in section A

1. Explain the phenomenon of photorespiration. **(3 marks)**
2. Explain the relevance of the high specific heat capacity of water for plant physiology. **(3 marks)**
3. Explain the basic steps in the Krebs cycle and how it is linked to Electron Transport Chain. **(3 marks)**
4. Explain how absorption of sunlight causes excitation of chlorophyll pigments. **(3 marks)**
5. Citing examples, describe briefly how symbiotic microorganisms fix nitrogen in plants. **(3 marks)**
6. Explain the roles of Rubisco, RuBP and NADPH in the Calvin cycle. **(3 marks)**
7. Describe the CAM pathway and how it differs from the C4 pathway. **(3 marks)**
8. Describe the relationship among the chloroplast, stroma, grana, and thylakoids. **(3 marks)**
9. Explain the difference between apoplastic and symplastic water movement in plants. **(3 marks)**
10. Explain the relationship between the light reactions and the carbon reactions. **(3 marks)**

SECTION B (40 MARKS): Answer any TWO questions

11. Give a detailed account of the commercial applications of phytohormones. **(20 marks)**
12. Discuss the nitrogen fixation process and its role in agriculture **(20 marks)**
13. Describe the process of water absorption in plants. **(20 marks)**
14. Write an essay on the principles and objectives of plant physiology. **(20 marks)**

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