



# **MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATIONS  
2023/2024 ACADEMIC YEAR  
FIRST YEAR FIRST SEMESTER**

**SCHOOL OF PURE, APPLIED AND HEALTH SCIENCES  
MASTERS OF SCIENCE IN PLANT PHYSIOLOGY**

**COURSE CODE: BOT 8110**

**COURSE TITLE: PHOTOSYNTHESIS AND  
BIOPRODUCTIVITY**

**DATE:28/5/24                      TIME:1100-1300HRS**

**INSTRUCTIONS TO CANDIDATES**

- a) Answer questions **any four** questions
- b) Illustrate your answers with suitable diagrams and give examples wherever appropriate.

**ANSWER ANY FOUR QUESTIONS, 15 MARKS EACH (TOTAL 60 MARKS).**

1. Design an experiment to measure CO<sub>2</sub> assimilation by plants in the field and the laboratory. **(15 marks)**
2. Discuss why Photosynthesis, the greatest and most fundamental source of power, remains largely untapped at a time when we face enormous challenges in terms of food, energy and climate change. **(15 marks)**
3. Discuss how cells use the energy and reducing power captured by the light reactions to make organic molecules. **(15 Marks)**
4. How can Challenges related to food, energy and the climate can be directly addressed via fundamental research into photosynthesis? **(15 marks)**
5. Give a detailed account on how Plants that are adapted to warmer environments have evolved principal ways to reduce loss of fixed carbon as a result of photorespiration. **(15 marks)**
6. Explain the relevance of photosynthesis to other living things. **(15 marks)**
7. Discuss the different stages of cellular respiration. **(15 marks)**

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