



# **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 8111**

**COURSE TITLE: PLANT WATER RELATIONS**

**DATE: 28/5/24**

**TIME:0230-0430HRS**

**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 develop calibrations between water content and the components of soil water potential **(15 marks)**
2. Discuss how the effectiveness of roots as absorbing organs depends on the anatomy of individual roots and on the extent and degree of branching of the root system. **(15 marks)**
3. Discuss different ways in which water is continuous in plants through the cell walls, the protoplasm, and its various organelles, but it is separated into compartments with respect to solutes by the differentially permeable membranes of the protoplasts and their organelles. **(15 Marks)**
4. Discuss the importance of water in living organisms that results from its unique physical and chemical properties. **(15 marks)**
5. Give a detailed account on the movement of water and solutes in plants. **(15 marks)**
6. Discuss Methods of measuring total plant water potentials and Interactions among Components. **(15 marks)**
7. Explain how water movement through the soil-plant-atmosphere system is best treated as a series of interrelated, interdependent processes. **(15 marks)**
8. Explain why Drought, permanent or temporary, limits the growth and distribution of natural vegetation and the yield of cultivated plants more than any other environmental factor. **(15 marks)**

**END//**