



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES

**UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN PLANT
ECOLOGY**

1ST YEAR 2ND SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS - REGULAR

COURSE CODE: SBT 812

COURSE TITLE: PHYSIOLOGICAL PLANT ECOLOGY

EXAM VENUE: LR 1

STREAM: (MSC)

DATE: 19/04/17

EXAM SESSION: 2.00 – 5.00 PM

TIME: 3 HOURS

Instructions:

- 1. Attempt ALL questions in Section A and Any two questions in Section B**
 - 2. Candidates are advised not to write on the question paper**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. a) Explain the importance of leaf transpiration in the xylem water transport. (3 marks)
- b) Using a diagram describe nutrient budget in plants. (4 marks)
- c) Give an account of allelopathy in plants. (4 marks)
- d) Citing examples, State the differences between C3 and C4 photosynthetic pathways. (4 marks)
- e) Explain the relationship between seed dormancy and germination. (4 marks)
- f) Explain three processes through which plant leaves can lose energy when their temperature exceeds air temperature (6 marks)
- g) Describes one method of measuring water potential in the soil (Ψ_{Soil}) and plant leaves (Ψ_{Leaf}). (5 marks)

SECTION B: ESSAY QUESTIONS (30 MARKS)

2. Write an essay on water relations in soil plant atmosphere continuum. (15 marks)
3. A) Using relevant examples briefly describe plant drought stress response mechanisms. (9 marks)
- B) Describe three environmental factors that affect primary production (6 marks)
4. Discuss the green world hypothesis. (15 marks)