



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2015/2016**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE  
DEGREE OF MASTERS OF SCIENCE IN BOTANY (PLANT  
ECOLOGY, PLANT PHYSIOLOGY AND BIOCHEMISTRY)**

**MAIN CAMPUS**

**SBT 812: PLANT PHYSIOLOGICAL ECOLOGY**

Date: 18<sup>th</sup> April, 2016

Time: 2.30 - 5.30pm

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**INSTRUCTIONS:**

- Answer ALL Questions in Section A and any other THREE from Section B.

**SECTION A: 30 Marks**

1. (a) Explain what is osmoregulation (5 marks)  
(b) Discuss the role of heat shock proteins (5 marks)  
(c) Using examples, discuss how plants on a tropical mountain are adapted to freezing stress (5 marks)
2. (a) Explain the negative impact of photorespiration in plants (5 marks)  
(b) Discuss the selective advantages of the C<sub>4</sub> pathway of photosynthesis (5 marks)  
(c) Explain the concept of hydraulic lift and indicate its ecological significance (5 marks)

**SECTION B: (30 marks)**

3. Using appropriate examples, discuss the mechanisms of seed dormancy (10 marks)
4. Explain how allelopathy contributes to plant distribution (10 marks)
5. Discuss the availability of nitrogen to plants and how this affects plant growth and distribution (10 marks)
6. Discuss the adaptations to salinity by halophytes (10 marks)
7. Discuss the Cohesion- Tension theory on the ascent of sap in tall trees (10 marks)