



**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 806: PHOTOSYNTHESIS**

Date: 22<sup>nd</sup> April, 2016

Time: 8.30 - 11.30am

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**INSTRUCTIONS:**

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

**SECTION A: 30 Marks**

1. (a) Describe the chloroplast structure in relation to its functions ( 5 marks)  
(b) Describe the structure of the ATPase complex (5 marks)  
(c) Describe the chemiosmotic mechanisms of ATP synthesis at the ATPase Complex (5 marks)
2. (a) Discuss the experiment of Calvin and co-workers which enabled them to elucidate the carbon reduction pathway (10 marks)  
(b) Describe the leaf anatomy of a C4 plant (5 marks)

**SECTION B: (30 marks)**

1. Discuss the fate of energy after its absorption by photosynthetic pigment like chlorophyll (10 marks)
2. Discuss the electron transport on thylakoid membrane and explain the effects of inhibitors and artificial electron acceptors in electron transport (10 marks)
3. Write an essay on the response of plant photosynthesis to environmental factors (10 marks)
4. Describe the light reaction in a named photosynthetic bacteria ( 10 marks)
5. Discuss the mechanisms that regulate Calvin Cycle enzymes (10 marks)