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MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2013/2014

**SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE IN HORTICULTURE WITH
INFORMATION TECHNOLOGY**

(MAIN CAMPUS)

AAG 207: PLANT BIOCHEMISTRY

Date: 2nd December, 2013

Time: 2.30 - 4.30pm

INSTRUCTIONS:

- Answer ALL questions in Section A and any other TWO questions from Section B.

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Answer ALL Questions in Section A and ANY TWO questions in Section B.

Section A: Answer ALL questions

1.
 - a) Explain the importance of biochemistry in agriculture (1 mark)
 - b) Briefly describe the principles underlying the detection of simple sugar in a sample. (4 marks)
 - c) Why is it important to have buffers in life? (2 marks)
2.
 - a) Briefly explain the process of hydrolysis and condensation in carbohydrates and proteins (4 marks)
 - b) State the chemical differences between α D-glucose and β D-glucose and how they function in plant cells (2 marks).
 - c) Differentiate between acid and basic amino acids (1 mark)
3.
 - a) Using at least two (2) examples, explain what is meant by coenzymes (1 mark)
 - b) State two (2) functions of lipids in a cell (1 mark)
 - c) Give two (2) factors that affect biochemical reactions (2 marks).
 - d) Highlight two (2) major functions of pentose phosphate pathway (2 marks)
4.
 - a. Explain the similarities between mitochondrial oxidative and phosphorylation in the chloroplast (2 marks)
 - b. Explain briefly why D- glucose is a strong reducing agent (2.5 marks)
 - c. Starch and cellulose have similar structures but different solubility, briefly explain (2.5 marks)

Section B: Answer ANY TWO Questions

5. Discuss the process of photosynthesis (20 marks)
6. Describe Krebs Cycle in life (20 marks)
7. Describe the levels of organization and functions of proteins or carbohydrates (20 marks)