



## MERU UNIVERSITY COLLEGE OF SCIENCE & TECHNOLOGY

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### University Examinations 2010/2011

SECOND YEAR, FIRST SEMESTER EXAMINATIONS FOR DIPLOMA IN AGRICULTURAL EDUCATION  
AND EXTENSION

#### BIO 0210: AGRICULTURAL BIOCHEMISTRY

DATE: DECEMBER 2010

TIME: 1½ HOURS

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INSTRUCTIONS: *Answer Question one which is Compulsory and any other two questions*

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#### QUESTION ONE – (30 MARKS)

- (a) What do you understand by the term Biochemistry? (2 Marks)
- (b) What are the primary functions of krebs cycle? (3 Marks)
- (c) List five functions of Vitamin A. (5 Marks)
- (d) Differentiate between Prokaryotic and Eukaryotic cells. (5 Marks)
- (e) What are the functions of the plant cell wall? (5 Marks)
- (f) Give the differences between monosaccharides and polysaccharides. (3 Marks)
- (g) Give the functions of carbohydrates. (2 Marks)
- (h) Enumerate the properties of water. (5 Marks)

#### QUESTION TWO – (15 MARKS)

Discuss the noncyclic photophosphorylation. (15 Marks)

#### QUESTION THREE – (15 MARKS)

- (a) Draw a well labeled structure of an animal cell. (5 Marks)
- (b) Briefly discuss the molecular components and functions of organelles in animal cell. (10 Marks)

#### QUESTION FOUR – (15 MARKS)

- (a) Differentiate between a nucleoside and a nucleotide. (4 Marks)
- (b) Enumerate the differences between DNA and RNA. (6 Marks)
- (c) Give five functions of nucleic acids. (5 Marks)

**QUESTION FIVE – (15 MARKS)**

- (a) Using plasma membrane as an example describe the structure of a biomembrane. (8 Marks)
- (b) Describe the classification of membrane proteins. (4 Marks)
- (c) What are the functions of protein in biomembranes? (3 Marks)