



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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University Examinations 2012/2013

SECOND YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN AGRICULTURAL
EDUCATION AND EXTENSION

BIO 0210: AGRICULTURAL BIOCHEMISTRY

DATE: AUGUST 2013

TIME: 1 ½ HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) State the functions of RNA. (3 Marks)
- b) i) Differentiate between saturated and unsaturated fatty acids based on their state at room temperature. (2 Marks)
- ii) State two structural properties of fatty acids that influence their melting point. (2 Marks)
- c) Identify the following groups of molecules based on their affinity to water. (3 Marks)
- hydrophobic group
 - hydrophilic group
 - Amphiphilic group
- d) i) Write short notes on hexose sugars. (4 Marks)
- ii) Distinguish between amylose and amylopectin. (4 Marks)
- e) i) Differentiate between the following paired terminologies. (4 Marks)
- homoglycans and heteroglycans
 - Cellulose and cellulase.
- ii) State the functions of the following vitamins. (3 Marks)
- vitamin B₂
 - vitamin B₃
 - vitamin B₁₂
- f) What do the following biochemical reactions involve? (5 Marks)
- Reduction
 - Oxidation

(iii) Carboxylation

(iv) Hydrolysis

(v) Deamination

QUESTION TWO (15 MARKS)

- a) Briefly explain the role of vitamin A. (10 Marks)
- b) Identify the roles of magnesium in the animals body. (5 Marks)

QUESTION THREE (15 MARKS)

- a) Write short notes on water polarity and capillarity action. (12 Marks)
- b) Briefly explain nucleophilic nature of water. (3 Marks)

QUESTION FOUR (15 MARKS)

- a) Identify any five roles of proteins. (5 Marks)
- b) Describe the levels of protein structure. (10 Marks)

QUESTION FIVE (15 MARKS)

Giving examples, describe classification of monosaccharides based on the number of carbon atoms. (15 Marks)