



MERU UNIVERSITY COLLEGE OF SCIENCE & TECHNOLOGY

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University Examinations 2010/2011

FIRST YEAR, FIRST SEMESTER EXAMINATIONS FOR DIPLOMA IN AGRICULTURAL EDUCATION
AND EXTENSION/CERTIFICATE IN AGRICULTURE

BIO 0110: AGRICULTURAL BOTANY

DATE: AUGUST 2010

TIME: 1½ HOURS

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

QUESTION ONE – (30 MARKS)

- (a) What is a plant? (4 Marks)
- (b) Outline the plant divisions under the following :
- (i) Thallophytes (plant with no vascular tissues)
 - (ii) Tracheophytes (plant with vascular tissues)
 - (iii) Gymnosperms (plants with naked seed)
 - (iv) Angiosperms (flowering plants). (6 Marks)
- (c) Describe the three tissues of plant body. (3 Marks)
- (d) The following are sets of names that were found in a taxonomist note book. Anthophyta, Plantae, Dicotyledonae, Magnoliidae, Ranunculus, Ranunculales, Ranunculaceae, Ranunculoidea, Ranunculeae, and Ranunculus Flammula. Using the biological nomenclature classify these names into their taxa and give the biological name of the organism. (6 Marks)
- (e) Describe the function of the following organelles.
- (i) Endoplasmic reticulum
 - (ii) Chloroplast
 - (iii) Plasmodesmata
 - (iv) Golgi apparatus. (5 Marks)
- (f) Describe three ways that enable the plants roots to absorb water and mineral salts from the soil up the plant. (6 Marks)

QUESTION TWO – (15 MARKS)

- (a) Two species have similar DNA Sequences. What does this tell you about the two species? (2 Marks)
- (b) Explain the following terms:
 - (i) Genus
 - (ii) Variety
 - (iii) Cultivar (3 Marks)
- (c) With an illustration describe the various plant stem modifications. (6 Marks)
- (d) Describe the male part of the flower. (4 Marks)

QUESTION THREE – (15 MARKS)

- (a) Explain pollination fertilization in plant (5 Marks)
- (b) Explain the light – reaction of photosynthesis (5 Marks)
- (c) Explain the factors that affect the rate of transpiration. (5 Marks)

QUESTION FOUR – (15 MARKS)

- (a) Describe the differences in dicotyledonous and monocotyledonous root. (5 Marks)
- (b) Explain the following plant responses.
 - (i) Senescence
 - (ii) Vernalization
 - (iii) Thigmotropism (6 Marks)
- (c) Explain the differences between autotrophism and phototropism. (4 Marks)

QUESTION FIVE – (15 MARKS)

- (a) Explain the cross leaf layers (6 Marks)
- (b) Describe how the Gibberellins growth regulator affects plants. (4 Marks)
- (c) Describe the formation of megasporangium in plants. (5 Marks)