



## MERU UNIVERSITY COLLEGE OF SCIENCE & TECHNOLOGY

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University Examinations 2011/2012

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

### BIO 0110: AGRICULTURAL BOTANY

**DATE: APRIL 2012**

**TIME: 1½ HOURS**

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

#### QUESTION ONE (30 MARKS)

- a. Differentiate the following paired terms used in agricultural botany (6 Marks)
  - i. Plant morphology/plant physiology
  - ii. acaulescent/arborescent stem
  - iii. racemose/cymose inflorescence
- b. outline the characteristic features of eukaryotic cells (4 Marks)
- c. describe the basic types of phyllotaxy (3 Marks)
- d. using specific examples outline the economic importance of flowering plants (4 Marks)
- e. (i) using a chemical formula, demonstrate what happens in photosynthesis (1 Mark)  
(ii) Apart from photosynthesis give other three functions of water in plants (3 Marks)
- f. A flower is “ zygomorphic, bisexual calyx of five free sepals, corolla of five fused petals, five distinct stamens, ,gynoecium with two carpels, ovary superior”. Represent this information using a floral formula (3 Marks)
- g. In a practical on plant growth and development students planted beans and placed them in a greenhouse. On day 5, 7, 12, 14, 19 and 21 after planting they measured the length of first 2 levels of each 3 plants. The data was plotted on a graph against time
  - i. Sketch the expected graph
  - ii. Describe the three primary growth phases exhibited by annual plants (3 Marks)

**QUESTION TWO (15 MARKS)**

- a. Trace the history of the influence of plants and plant products on man up to the time to become a mobile man (8 Marks)
- b. Discuss the importance or application in agricultural botany (7 Marks)

**QUESTION THREE (15 MARKS)**

Discuss the following categories of plants on the basis of their general morphology

- a. Bryophytes
- b. Pteridophytes
- c. Gymnosperms
- d. Angiosperms (15 Marks)

**QUESTION FOUR (15 MARKS)**

Discuss plant adaptations to life on land in terms of (15 Marks)

- a. Prevention of drying out
- b. Promotion of gaseous exchange
- c. Weight support
- d. Transporting materials throughout the plant
- e. Reproductive mechanisms

**QUESTION FIVE (15 MARKS)**

- a. Define cell differentiation (2 Marks)
- b. Discuss in details the characteristics of the following plant tissues (13 Marks)
  - i. Meristematic tissues
  - ii. Epidermal tissues
  - iii. photosynthetic tissues
  - iv. Storage tissues