University Examinations 2010/2011

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

BIO 0110: AGRICULTURAL BOTANY

DATE: APRIL 2011   **TIME: 1½ HOURS**

INSTRUCTIONS: *Answer questions* **one** *(**Compulsory**) and any* **two** *questions*

QUESTION ONE – (30 MARKS)

(a) Define the following terms   (5 Marks)
   (i) Palaeobotany
   (ii) Meristem
   (iii) Phyllotaxy
   (iv) Somatic structure
   (v) Dichotomous key

(b) (i) Living organisms have been organized into kingdoms. List down the universally recognized kingdoms currently.   ($2\frac{1}{2}$Marks)

   (ii) Explain the following terms as applied to fungi
      - Parasitic
      - Saprophytic   (4 Marks)

(c) Classify bacteria according to shape.   (3 Marks)

(d) (i) List down in brief the details to include as field notes when collecting plant specimens.
                                                           ($3\frac{1}{2}$Marks)

   (ii) Write short notes on any two plant families.   (4 Marks)

(e) (i) Name three functions of stems in a plant.   (3 Marks)
   (ii) Identify any five specialized stems with brief remarks about each.   (5 Marks)

QUESTION TWO – (15 MARKS)

   (a) Sketch and label a typical plant cell   (5 Marks)

   (b) State the function of any three of the cell organelles.   (3 Marks)

   (c) Describe two basic types of cells   (4 Marks)

   (d) What are the three postulates of the cell theory?   (3 Marks)

QUESTION THREE – (15 MARKS)

   (a) What is a tissue?   (2 Marks)

   (b) Briefly describe three types of tissues.   (6 Marks)

   (c) Using a suitable diagram of a leaf or root show cell differentiation.   (5 Marks)

   (d) Name two mechanisms of cell formation detailing each briefly   (2 Marks)

QUESTION FOUR – (15 MARKS)

   (a) Using a suitable diagram, show the morphology of a typical flower.   (5 Marks)

   (b) Decipher the following floral formula.   (2 Marks)

      $K(5)P5A5 + 5G\infty$

   (c) Flowers are sometimes grouped into clusters. Briefly describe two basic types of inflorescence.   (4 Marks)

   (d) Using specific examples outline the economic importance of flowering plants.

                                                            (4 Marks)

QUESTION FIVE – (15 MARKS)

   (a) What is the difference between a "true" and a "false" fruit?   (2 Marks)

   (b) (i) Classify fruits on the basis of the nature of the pericarp and gynaecium.

                                                              (6 Marks)

      (ii) In which category of fruits does each of the following belong?   (3 Marks)
- Pineapple
- Mango
- Strawberry

   (c) Mention four characteristics of adaptation of fruits or seeds for dispersal and survival.

                                                              (4 Marks)