JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

FIRST YEAR FIRST SEMESTER UNIVERSITY EXAMINATION

2017/2018 ACADEMIC YEAR

REGULAR

COURSE CODE: APT 3111

COURSE TITLE: AGRICULTURAL BOTANY

EXAM VENUE: LAB 3 **STREAMS: BSc. AGED, Bsc. Horticulture, Bsc. Soil Science, Bsc. Animal Science**

DATE: 14/12/17 **EXAM SESSION: 9.00 – 11.00 AM**

TIME: 2 HOURS

Instructions:

1. **Answer ALL questions in section A and ANY other 2 Questions in section B.**
2. **Candidates are advised not to write on question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

SECTION A [30 MARKS]

Answer ALL questions from this Section.

1. What is plant morphology? **(2 Marks)**

2. Define the following terms as used in developmental biology. **(4 Marks)**

   a) Cell differentiation
   b) Morphogenesis
   c) Morphological patterning
   d) Phenotypic plasticity

3. Give functions of the following primary meristems. **(3 Marks)**
   a) Protoderm
   b) Ground meristem
   c) Procambium

4. State FOUR differences between Mitosis and Meiosis. **(4 Marks)**

5. Differentiate between the following terms as used in plant botany. **(6 Marks)**

   a) Homology and convergence
   b) Pluripotent and totipotent cells
   c) Monoecious and dioecious plants

6.
   a) Explain THREE primary causes of morphological variation in plants. **(3 Marks)**
   b) Using well labeled diagrams, differentiate between the cross section of a monocot and dicot root. **(6 Marks)**
   c) Name the two layers of cells which arise from actively dividing cells of the cork cambium in the stems during secondary growth. **(2 Marks)**

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

7. Using appropriate diagrams outline the following processes **(20 Marks)**
   i. Primary growth of the root
   ii. Secondary growth of the stem

8. Outline the structural, functional and ecological adaptations of the following plants in their respective habitats. **(20 Marks)**
   a) Halophytes
   b) Hydrophytes
   c) Epiphytes
   d) Xerophytes

9.
   a) Explain the functions of each of the following cell types **(12 Marks)**
      i. Parenchyma cells
      ii. Collenchyma cells
      iii. Sclerenchyma cells
      iv. Cortex cells
   b) Using a well labeled diagram, explain the functions of the internal features of a leaf blade. . **(8 Marks)**