CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRI 441: SEED SCIENCE AND TECHNOLOGY

STREAMS: BSC (AGRIC) Y4S1 **TIME: 2 HOURS**

DAY/DATE: MONDAY 10/12/2018 **2.30 PM – 4.30 PM**

INSTRUCTIONS:

SECTION A – ANSWER ALL QUESTIONS (30 MARKS)

1. (a) Explain four factors that may influence floral induction in a plant. [4 marks]

   (b) Describe apomixis and state one advantage and one disadvantage of apomictically produced seeds. [4 marks]

   (c) Explain how seed dormancy can lead to distribution of germination in space. [4 marks]

2. Explain five roles of a seed coat. [5 marks]

3. Explain the development of a tetrasporic embryo sac and give plant examples. [6 marks]

4. Draw and label the major parts of a mature embryo sac. [7 marks]

SECTION B – ANSWER ANY 2 QUESTIONS (40 MARKS)

5. (a) Describe seed deterioration and list its major causes. [5 marks]

   (b) Describe seed testing, labeling and sealing as certification processes. [5 marks]

(c) Describe seed size and moisture content as measures of physiological maturity in seeds. [10 marks]

6. (a) Describe briefly how three way and double cross hybrid seeds are produced. [4 marks]

(b) Explain how the following seed germination tests work:

(i) The vital coloring test [3 marks]

(ii) Electrical conductivity test [3 marks]

(c) Describe the formation of a pollen grain from the pollen mother cell to pollen shedding. [10 marks]

7. (a) Describe the term germination and explain the 3 seed-factors important for the germination process to occur. [6 marks]

(b) Discuss starch as a seed storage chemical and its functionality for use as a diet. [14 marks]
