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(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER
MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE AND BIOTECHNOLOGY

COURSE CODE: ACR 313
COURSE TITLE: CROP PHYSIOLOGY
DATE 22ND DECEMBER 2022 **TIME: 9 – 11 AM**

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over

KIBU observes ZERO tolerance to examination cheating

1. (a) Identify the deficient mineral element (s) in plants exhibiting the following symptoms;
   (i) Poor root nodulation (1 mark)
   (ii) Leaf abscission (1 mark)
   (iii) Low quality fruits and grains (2 marks)
   (iv) Delayed maturation. (2 marks)
   (v) Poor seed formation. (2 marks)
   (vi) Poor frost hardiness. (2 marks)

   (b) (i) State four survival values of nastic responses in plants. (4 marks)

   (ii) Categorize plants based on their response to the photoperiod. (6 marks)

   (c) Explain how seed dormancy is influenced by the following factors:
   (i) Seed coat (2 marks)
   (ii) Phytochrome (2 mark)

   d) State six necessary tests for determining seed vigour. (6 marks)

2. Using general equations, describe the light and dark stages of photosynthesis and outline the factors that affect the rate of this plant physiological process (20 marks)

3. Explain the role of essential pigments in plant physiological function. (20 marks)

4. Describe the modifications that can be made to the environment to influence plant physiology and economic yield. (20 marks)

5. Seed dormancy has ecological significance in the survival of certain plants. Describe the types of dormancy exhibited by seed and how they can be broken. (20 marks)