



(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2023/2024 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: 14TH DECEMBER 2023 **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) As an Agricultural Field Officer in Bungoma County, you visited farmers' fields and noticed the following general and specific observable symptoms on their Bean crop. Identify the deficient element in each of the cases given below:

i. General symptoms:

- Older leaves of the plants were affected, the effect was localized with mottled, chlorotic spots;
- Plant stems/stalks were slender with mottled chlorotic leaves that had large necrotic spots (1 mark)
- Plant leaves had small necrotic spots with interveinal necrosis on the leaf tips and margins (1 mark)
- Plant stems/stalks were short and leaves were thick with veinal necrosis. (1 mark)
- Young leaves of the plant are affected, the leaves and terminal buds are dying
- Plant leaves husked with die back at tips and margins (1 mark)
- Plant leaves twisted with die back at the leaf bases (1 mark)

b) Identify five causes of dormancy in seed of crop plants (5 marks)

c) Explain the physiological effect of water and wind on plant growth. (10 marks)

d) List and explain the role of five essential pigments in plants (10 marks)

2. With the aid of biochemical equations describe the dark and light stages of photosynthesis. (20 marks)

3. Discuss the tropic and nastic movements in plants highlighting the significance of these responses. (20 marks)

4. Describe the adaptation of a plant leaf for photosynthetic function and explain the factors that affect the rate of photosynthesis. (20 marks)

5. Discuss the types and roles of hormones in plant growth (20 marks)