

2910/103
CROP ENTERPRISE MANAGEMENT I AND
FOUNDATIONS OF SUSTAINABLE AGRICULTURE
June/July 2022
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN SUSTAINABLE AGRICULTURE
AND RURAL DEVELOPMENT

MODULE I

CROP ENTERPRISE MANAGEMENT I AND FOUNDATIONS OF
SUSTAINABLE AGRICULTURE

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Non-programmable scientific calculator;

Answer booklet.

This paper consists of EIGHT questions in TWO sections; A and B.

Answer a total of FIVE questions taking at least TWO questions from section A and at least TWO questions from section B, in the answer booklet provided.

All questions carry equal marks.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This question paper consists of 3 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A: CROP ENTERPRISE MANAGEMENT I

Answer at least TWO questions from this section.

1. (a) Explain four effects of temperature on plants. (8 marks)
*Evapotranspiration - promotes bearing in some plants
- Increases pest occurrence - promote flowering*
- (b) Explain six measures used in the management of soil fertility. (12 marks)
*Planting color crops - control soil erosion
- Weed control - intercropping - pest control use of inorganic fertilizers
- Crop rotation - mulching - use organic manure*
2. (a) Highlight ten causes of low agricultural production. (10 marks)
- (b) Explain self pollination under the following:
- (i) features;
- (ii) significance. (10 marks)
3. (a) Distinguish between grafting and budding. (6 marks)
- (b) Highlight six post-harvest losses in crops. (6 marks)
- (c) A greenhouse measuring 24 m by 8 m is constructed with the beds measuring 15 m by 1 m and pathways measuring 60 cm between the beds. Given that 2 rows of tomatoes are planted per bed at inter-plant spacing of 40 cm, determine:
- (i) total number of beds in the greenhouse;
- (ii) total number of plants in the greenhouse;
- (iii) actual planting area. (8 marks)
4. (a) Cabbages are planted at a spacing of 60 cm by 60 cm. Given that one cabbage plant requires 10 g of CAN fertilizer, determine the amount of fertilizer required for one acre of land. (5 marks)
- (b) Highlight five characteristics of a potting media. (5 marks)
- (c) Describe striga weed (*Striga hamonthea*) under the following:
- (i) characteristics;
- (ii) control measures. (10 marks)

SECTION B: FOUNDATIONS OF SUSTAINABLE AGRICULTURE

Answer at least **TWO** questions from this section.

5. (a) Describe vulnerability food insecurity under the following:
- (i) meaning;
 - (ii) components. (8 marks)
- (b) Describe double digging with respect to:
- (i) measuring;
 - (ii) procedure. (12 marks)
6. (a) Highlight **four** advantages and **three** disadvantages of dammed water reservoirs. (7 marks)
- (b) Discuss the integration of aquaculture, livestock and crops in a farm. (13 marks)
7. (a) Explain five factors that influence soil moisture retention. (10 marks)
Soil type - Temperature - Soil organic matter
- (b) Explain the types of monitoring. (10 marks)
- Soil texture - Humidity
8. (a) Highlight the features of appropriate technology. (10 marks)
- (b) Explain the environment under the following:
- (i) meaning;
 - (ii) components. (10 marks)

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