

2425/101
PRINCIPLES OF CROP PRODUCTION I
AND SOIL SCIENCE
June/July 2019
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN AGRICULTURE

MODULE I

PRINCIPLES OF CROP PRODUCTION I AND SOIL SCIENCE

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Non-programmable scientific calculator.

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

*Answer any **THREE** questions from section **A** and any **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 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: PRINCIPLES OF CROP PRODUCTION I (60 marks)

Answer any **THREE** questions from this section.

1. (a) Explain relay cropping under the following:
- (i) meaning;
 - (ii) benefits.
- (10 marks)
- (b) Explain the methods used in harvesting agroforestry tree species. (10 marks)
2. (a) Explain the criteria used in classification of herbicides. (10 marks)
- (b) A farmer applied 200 kg of 20:10:15 N:P:K fertilizer in a plot of land. Determine the amount of:
- (i) nutrients contained in the fertilizer;
 - (ii) filler material.
- (10 marks)
3. Describe the steps involved in T (shield) budding. (20 marks)
4. (a) Highlight the functions of Kenya Plant Health Inspectorate Service (KEPHIS). (8 marks)
- (b) Explain the mechanisms that favour cross pollination in crops. (12 marks)
- (a) (i) Outline the steps involved in hay making. (7)
- (ii) Highlight the factors influencing the quality of hay. (11)
- (12 marks)
- (b) State the problems affecting crop production in Kenya. (8)
- (8 marks)



SECTION B: SOIL SCIENCE (40 marks)

Answer any **TWO** questions from this section.

6. (a) (i) Explain the causes of poor fertility in acidic soils. (16 marks)
- (ii) Explain the measures that may be used in management of soil acidity. (4 marks)
7. (a) Describe the effects of topography on soil formation. (7 marks)
- (b) Describe cation exchange under the following: (13 marks)
- (i) meaning;
- (ii) principles;
8. (a) Explain the approaches used in soil classification. (8 marks)
- (b) Describe the categories used in the new comprehensive system of soil classification. (12 marks)
- land suitability and capability*
- WDA*
- FAO*

Handwritten calculations:

$$\begin{array}{r} 48 \\ 1- \\ \hline 56 \\ 4 \\ \hline 60 \\ 8 \\ \hline 68 \end{array}$$

THIS IS THE LAST PRINTED PAGE.

