

2425/101
PRINCIPLES OF CROP PRODUCTION I
June/July 2017
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN AGRICULTURE
MODULE I**

PRINCIPLES OF CROP PRODUCTION I

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.

Answer any FIVE questions 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.

crop residue
straw
manure



5 1. (a) Explain any five agronomic practices that increase soil organic matter. (10 marks)

(b) Explain how the following factors influence crop production:

- (i) light intensity,
 - (ii) light duration.
- (10 marks)



2. (a) Describe the following methods of crop protection:

- (i) allelopathy;
 - (ii) drenching.
- (6 marks)

(b) Explain ways of enhancing effectiveness of pesticides. (8 marks)

(c) Describe eutrophication process. (6 marks)

1 3. (a) Highlight the management practices of trees and shrubs in agroforestry. (10 marks)

(b) Give any five disadvantages of alley cropping. (5 marks)

(c) State any five advantages of containerised seedlings. (5 marks)

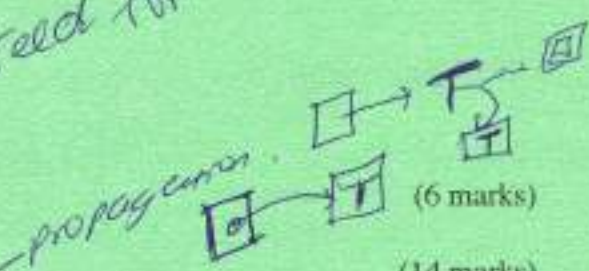


(a) Describe the following classes of seeds:

- (i) breeder;
 - (ii) foundation;
 - (iii) certified.
- (6 marks)

pure line
pure

(b) Outline the T-budding method of propagation. (14 marks)



5. (a) Given that maize is planted at a spacing of 75 cm x 30 cm using 20:10:5 fertilizer at a rate of 5 grams per planting hole, calculate:

vegetative propagation
some are
indeterminate

- (i) the quantity of fertilizer in kilograms, needed to plant maize on a piece of land measuring 100 m x 70 m;
 - (ii) amount of each of the three primary macro-nutrients applied with fertilizer;
 - (iii) amount of filler material applied with the fertilizer.
- (10 marks)



(b) Explain the causes of herbicide selectivity. (10 marks)

selective
herbicide

6. (a) With respect to a forage crop for silage making, explain the relationship between:

- (i) quality and stages of growth;
 - (ii) quantity and stages of growth;
 - (iii) state the best stage for harvesting the forage crop.
- (10 marks)

forage

Handwritten signature



- (b) (i) Define the term 'seed rate'.
- (ii) Describe the variables used in calculation of seed rate. (10 marks)

7. (a) Define the following terms:

- (i) mass selection;
- (ii) pure line selection;
- (iii) polyploidy;
- (iv) genetic engineering.

Single selection

(8 marks)

(b) Describe relay cropping with respect to:

- (i) definition;
- (ii) advantages.

no genuine embryo inhibition

(12 marks)

48.

(a) Explain the types of seed dormancy.

*field inspection
seed measuring
seed testing
seedling
post certification survey*

(10 marks)

(b) Outline the activities involved in seed certification.

(10 marks)

*2-5-11
6-0-2-4-5*

THIS IS THE LAST PRINTED PAGE.

