

2425/101  
PRINCIPLES OF CROP  
PRODUCTION I AND SOIL SCIENCE  
June/July 2011  
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;  
Scientific calculator;



This question paper consists of **TWO** sections; A and B.  
Answer any **THREE** questions from section A and any **TWO** questions from section B.  
Maximum marks for each part of a question are as shown.

This paper consists of 2 printed pages.

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

June/July 2011

JUNE/July 2011

## SECTION A: CROP PRODUCTION

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

1. (a) Explain the importance of plant breeding in agriculture. (6 marks)
- (b) Describe the stages followed in seed certification. (14 marks)
2. (a) A farmer uses the spacing of 75cm by 25cm when planting maize. Calculate the seed rate in Kilogrammes per hectare if the average weight of 100 maize seeds is 28.5g and the germination percentage of maize is 85%. (8 marks)
- (b) Discuss the factors that favour the development of pest population. (12 marks)
3. (a) Explain ways of maintaining soil fertility. (10 marks)
- (b) Explain the importance of pruning in crop production. (10 marks)
4. (a) Discuss the advantages of using vegetative propagation in crops production. (10 marks)
- (b) Explain the factors affecting availability of soil moisture to plants. (10 marks)
5. (a) Explain the advantages of *Leucaena leucocephala* in agriculture. (15 marks)
- (b) Explain the importance of forage conservation. (5 marks)
- (c) Describe the characteristics of organic manures. (10 marks)



## SECTION B: SOIL SCIENCE

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

6. (a) Explain the factors affecting soil moisture movement. (8 marks)
- (b) Explain the factors influencing soil structure. (12 marks)
7. (a) Explain the following terminologies;
  - (i) gilgai;
  - (ii) argillo pedoturbation;
  - (iii) slickensides;
  - (iv) chronosequence. (8 marks)
- (b) Describe the criteria used in classification of igneous rocks. (12 marks)
8. (a) Describe the role of biotic factors in soil formation. (8 marks)
- (b) Explain the factors influencing soil porosity. (12 marks)