

Name: _____ Index No. _____ / _____

2525/303

2921/303

AGRICULTURAL ENGINEERING III

June/July 2013

Time: 3 hours

Candidate's Signature: _____

Date: _____



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN ENTREPRENEURIAL AGRICULTURE

MODULE III

AGRICULTURAL ENGINEERING III

3 hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.

Sign and write the date of the examination in the spaces provided above.

You should have the following for this examination:

Drawing instruments;

Scientific calculator (non programmable).

Answer any FIVE questions out of the EIGHT questions in the spaces provided.

Maximum marks for each part of a question are as indicated.

Candidates should answer the questions in English.

For Examiner's Use Only

Question	1	2	3	4	5	6	7	8	TOTAL
Marks									

This paper consists of 16 printed pages.

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

1. (a) Name any **two** sources of ground water. (2 marks)
- (b) Outline any **three** factors that affect the quality of water on a farm. (6 marks)
- (c) Describe **four** techniques of water harvesting on a farm. (12 marks)
2. (a) Discuss the effects of soil erosion. (12 marks)
- (b) With the aid of sketches, describe the following soil and water conservation measures.
 - (i) gabion;
 - (ii) grassed water way. (8 marks)
3. (a) Define the following soil-plant water relationship terms:
 - (i) intake rate;
 - (ii) field capacity;
 - (iii) permeability;
 - (iv) consumptive use. (4 marks)
- (b) Outline any **five** functions of irrigation. (5 marks)
- (c) With the aid of sketches, explain the operation of drip irrigation. (11 marks)
4. (a) Outline **four** drainage methods used on farms. (8 marks)
- (b) Discuss the conditions in an area where land drainage is required so as to enhance its productivity. (12 marks)
5. (a) Outline **three** processes of wind erosion. (6 marks)
- (b) Discuss the importance of afforestation in agriculture. (14 marks)
6. (a) List **four** types of pipes used for water distribution on farms. (4 marks)
- (b) Describe **four** water storage facilities used on farms. (8 marks)
- (c) Describe any **four** types of pumps used for water distribution on farms. (8 marks)
7. (a) Outline **three** types of soil moisture. (6 marks)
- (b) State any **three** advantages of sub-surface irrigation. (3 marks)
- (c) With the aid of a sketch describe the furrow irrigation method. (11 marks)
8. (a) Describe **three** types of sewerage systems used on farms. (6 marks)
- (b) Describe the primary farm waste water treatment process. (14 marks)