2425/204
AGRICULTURAL ENGINEERING II
June/July 2017
Time: 3 hours

03 AUG 2017

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN AGRICULTURE
MODULE II

AGRICULTURAL ENGINEERING II

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
  Answer booklet;
  Drawing instruments;
  Non-programmable scientific calculator.
This paper consists of THREE sections A, B, and C.
Answer a total of FIVE questions, taking at least TWO questions from section A, at least ONE question from section B and at least ONE question from section C.
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.

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SECTION A

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

1. (a) Calculate the area of the plot shown in figure 1 using the trapezoidal rule. The width of each strip is 20 m and the ordinate readings in metres are: 65, 68, 70, 73 and 75 respectively. (6 marks)
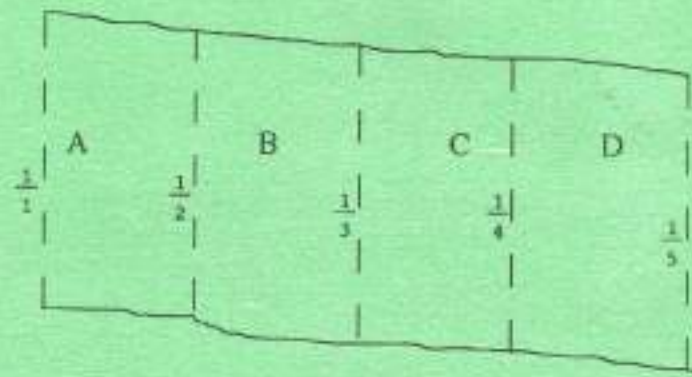

Figure 1

(b) Figure 2 shows a small farm survey plan. The readings obtained were:

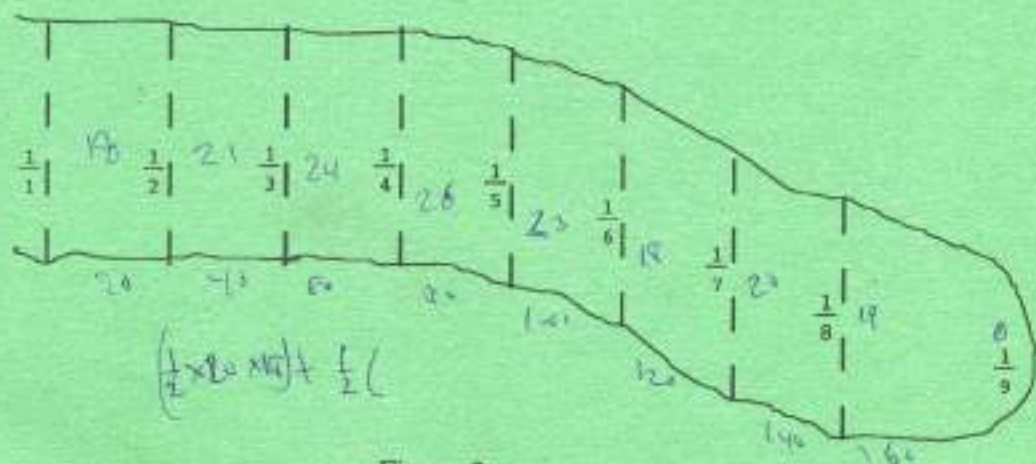| Distance (m)	0	20	40	60	80	100	120	140	160
Ordinates (m)	18	21	24	26	23	18	20	19	0

Figure 2

Calculate the area of the farm using Simpson's rule. (14 marks)

2. (a) Give any **four** characteristic of contours. (4 marks)

(b) Describe the importance of contour maps to a farmer. (16 marks)

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3. (a) Explain the factors that determine human settlement in a given area. (12 marks)

   (b) Outline **four** sources of mapping data. (8 marks)

4. Describe any **ten** factors considered in farm planning process. (20 marks)

SECTION B

Answer at least ONE question from this section.

5. (a) State any **five** methods used for treating building materials. (5 marks)

   (b) With the aid of a labelled diagram, describe the construction of a wire floored type of poultry house. (15 marks)

6. (a) Distinguish between a gate and a man pass in farm structures. (4 marks)

   (b) Explain the de-merits of using live fences on farms. (16 marks)

SECTION C

Answer at least ONE question from this section.

7. (a) Explain how excessive checking and cracking of grains are minimized in drying. (8 marks)

   (b) Describe the benefits of artificial drying of cereal grains. (12 marks)

8. (a) Explain the operational difference between axial-flow and centrifugal fans. (4 marks)

   (b) (i) Outline the characteristics of axial flow fans as compared to other types of fans used in grain drying.

      (ii) Illustrate the performance curves for axial flow fans in relation to brake horse power, static pressure and static efficiency. (16 marks)

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