

1308/312
SURVEY DRAWING
June/July 2021
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
CRAFT CERTIFICATE IN LAND SURVEYING

SURVEY DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Drawing paper;

Drawing instruments;

Scientific calculator;

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

*Answer any **FIVE** questions choosing at least **TWO** questions from each section.*

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

Candidates should answer the questions in English.

This paper consists of 5 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

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

1. (a) Construct an ellipse of major axis 90 mm and a minor axis of 50 mm using the concentric circles method. (11 marks)
- (b) Construct a pentagon within a circle of diameter 80 mm. (9 marks)
2. (a) Construct a plane scale 40 mm = 10 mm with a maximum reading length 40 mm long with a minimum division of 1 mm. Show the following readings:
 - (i) 34 mm;
 - (ii) 17 mm.(8 marks)
- (b) **Figure 1** shows two unequal square pipes joined at an angle of 45° , drawn in first angle projection. Draw the following views full size:
 - (i) complete front elevation;
 - (ii) complete end elevation;
 - (iii) complete plan.(12 marks)

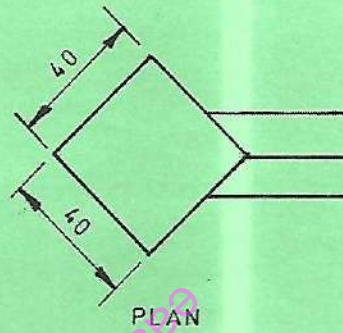
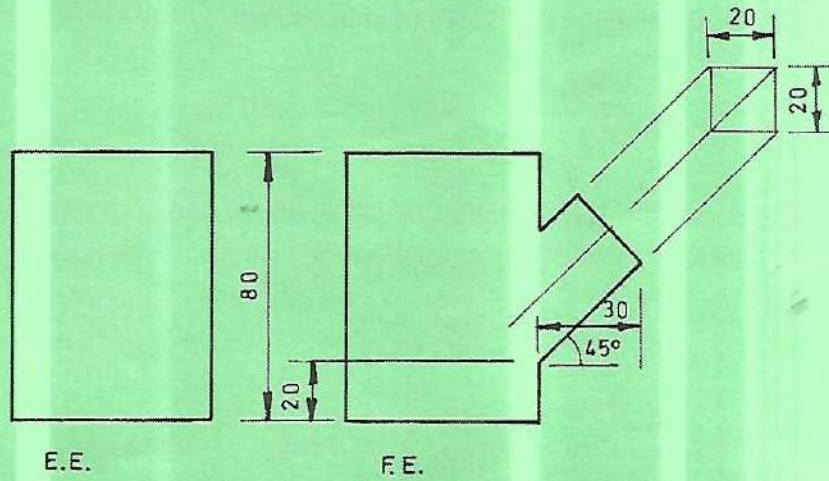


Fig. 1

3. **Figure 2** shows orthographic views of an object drawn in first angle projection. Draw an oblique cavalier projection of the object. (20 marks)

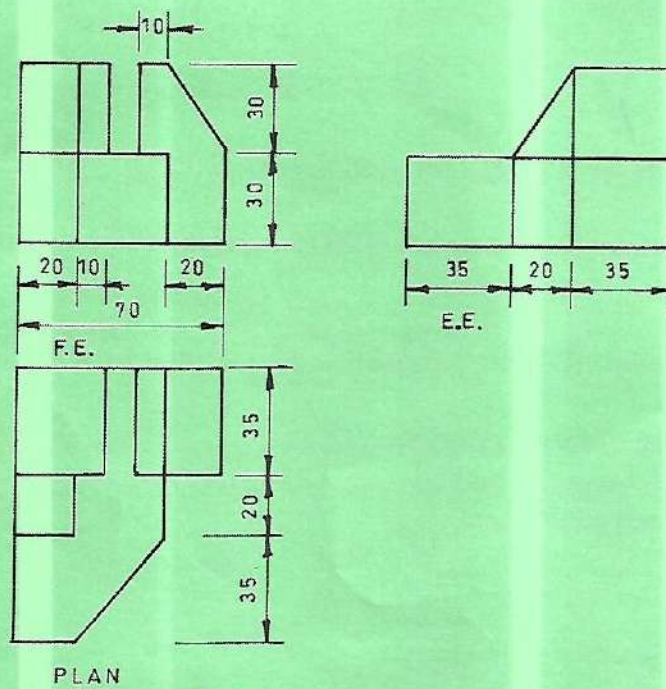


Fig. 2

4. (a) Construct an equilateral triangle of sides 60 mm hence circumscribe a circle on it. (8 marks)

(b) Figure 3 shows orthographic views of an object drawn in third angle projection. Sketch an isometric view of the object with point C as the lowest point. (12 marks)

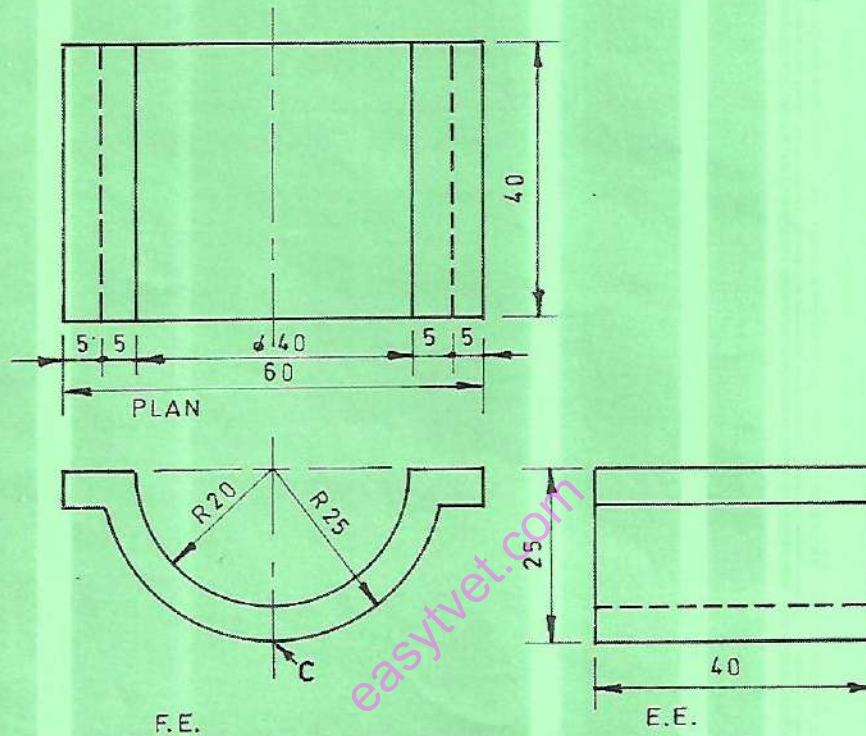


Fig. 3

SECTION B

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

5. (a) Outline **six** differences between written and graphic communication in a drawing environment. (12 marks)
- (b) Illustrate how the following information are indicated on a survey plan:
- (i) boundary of a surveyed parcel;
 - (ii) different types of beacons;
 - (iii) grid lines and values.
- (8 marks)

6. (a) Using the following information, design grid squares for plotting the survey plan at scale 1:2500.

STN		Northings (M)	Eastings (M)
A		87,327.63	9,675.78
B		87,426.45	9,528.63
C		87,372.26	9,359.46
D		86,954.79	9,396.92

(12 marks)

- (b) Outline the following terms as used in relief representation:

- (i) profile; - is the cross-section of the earth surface
(ii) gradient. showing the slope of a region

(8 marks)

7. (a) Explain how the following drawing instruments are maintained:

- (i) pencils;
(ii) technical pens;
(iii) drop compass;
(iv) scale rule.

(10 marks)

- (b) Explain how 'TEXT' can be used to represent the following features, giving examples:

- (i) quantitative representation of point features;
(ii) the extent of areal features;
(iii) administrative area and its headquarter;
(iv) the nature of man made and natural features.

(10 marks)

8. (a) Using illustrations, explain how the following features are represented on maps:

- (i) a hill;
(ii) a valley;
(iii) heights of established ground central points.

(12 marks)

- (b) If the scale of a map is given as 1:10,000 and the map distance 15 cm. Calculate the ground distance and use it to design a scale line. (8 marks)

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