

1308/312
SURVEY DRAWING
June/July 2022
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 FIVE questions choosing at least TWO questions from each section.

All questions carry equal marks.

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

Candidates should answer the questions in English.

This paper consists of 8 printed pages.

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

© 2022 The Kenya National Examinations Council

Turn over

SECTION A: TECHNICAL DRAWING

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

- 1. (a) Construct a plain scale 30 mm = 10 mm, 40 mm long to read. (5 marks)
- (b) Convert a circle of diameter = 60 mm to an isometric circle. (5 marks)
- (c) **Figure 1** shows a truncated square pyramid.
 - (i) Draw the development of the cut cone when opened a long A - A.

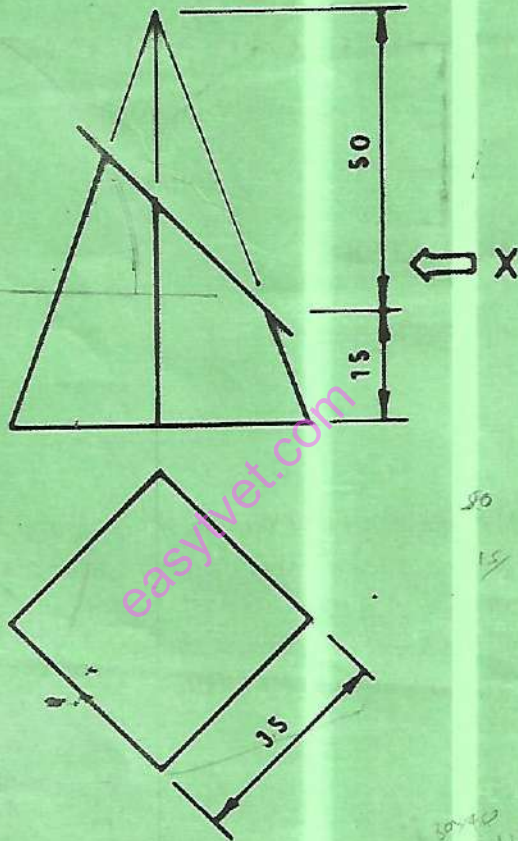


Fig.1

- (i) Draw a complete plan;
- (ii) Draw the end elevation viewed from arrow X.

(10 marks)

2. (a) **Figure 2** shows the orthographic views of a shaped object.

Draw an auxiliary view of the object viewed in the direction of arrow W.

(6 marks)

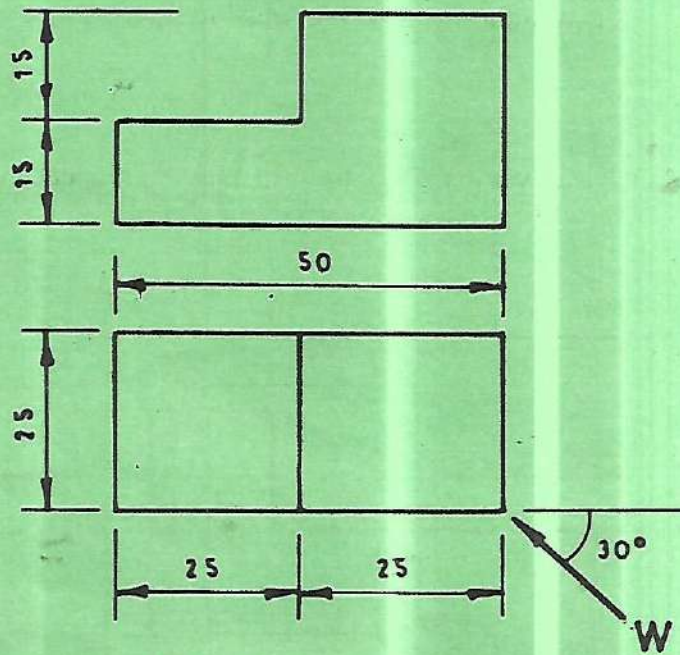


Fig.2

(b) **Figure 3** shows a plane figure without dimensions to be cut out of a metal sheet.

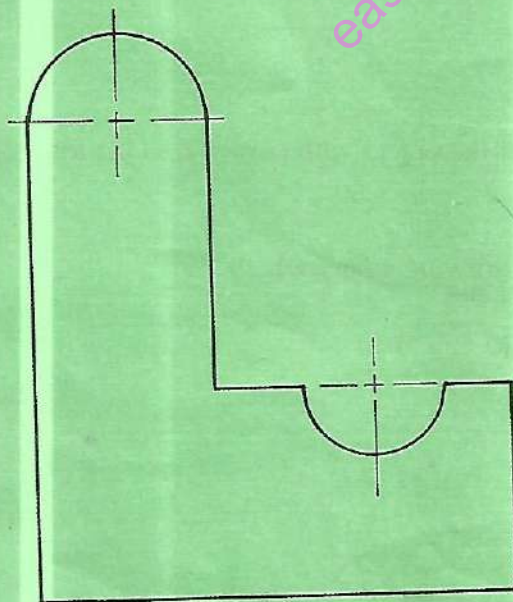


Fig.3

Copy the figure, show all the important dimensions and label the drawing as part number 1.

(10 marks)

Turn over

(c) Sketch a claw hammer.

(4 marks)

3. Figure 4 shows orthographic views of a shaped block.

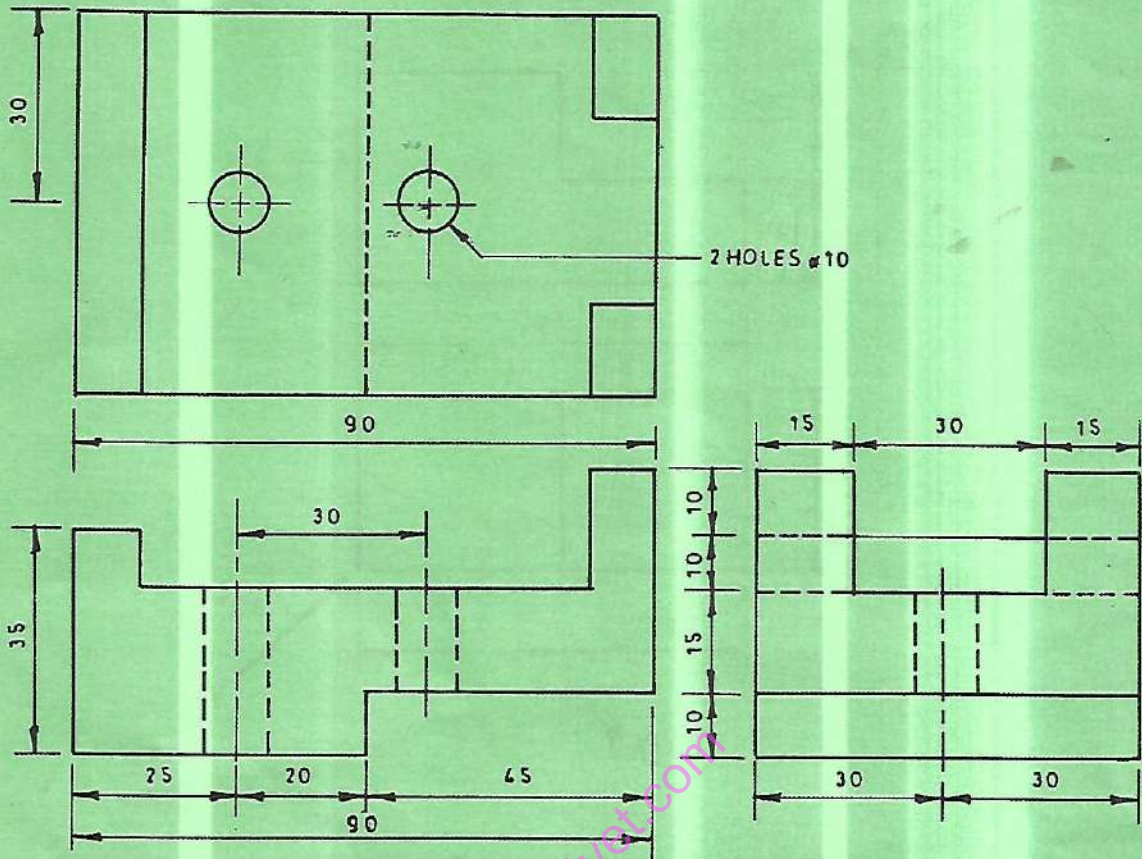


Fig 4

Draw , full scale, the isometric view of the object with corner Z as the lowest point.

(20 marks)

4. (a) Figure 5 shows an outline for drawing a parabola.

The focus and the directrix is 20 mm apart.

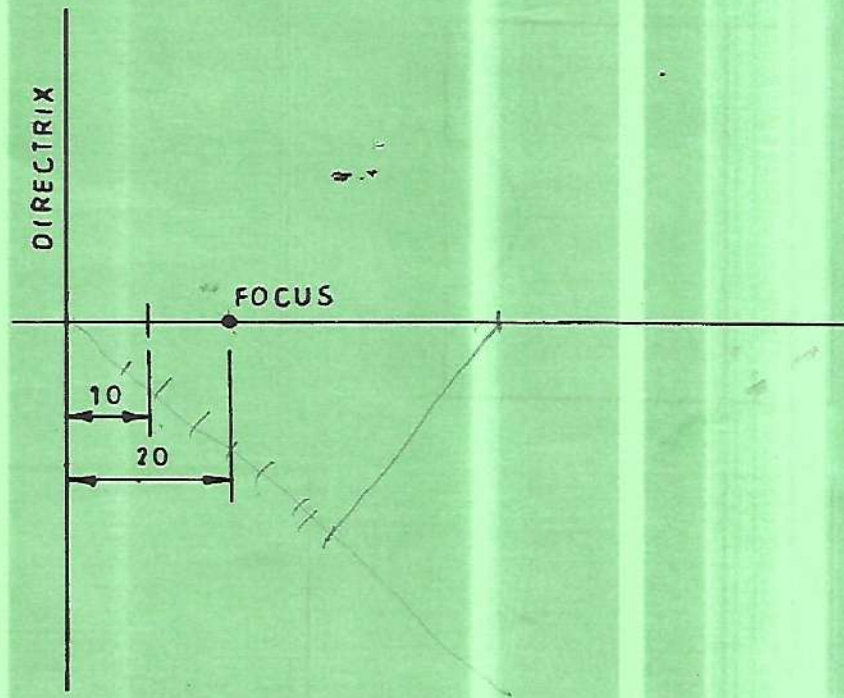


Fig. 5

Draw the parabola for a distance of 60 mm from the directrix.

(10 marks)

- (b) **Figure 6** shows three views of an object drawn in 3rd angle orthographic projection.

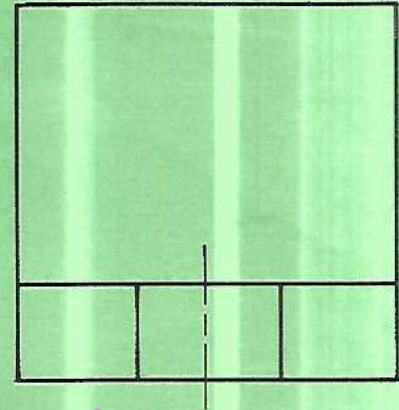
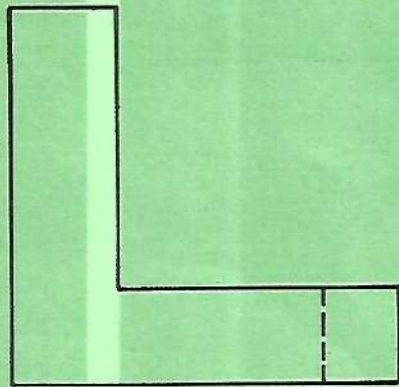
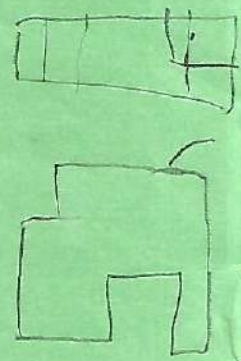
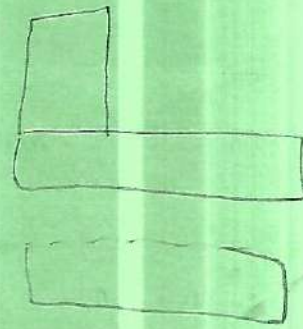
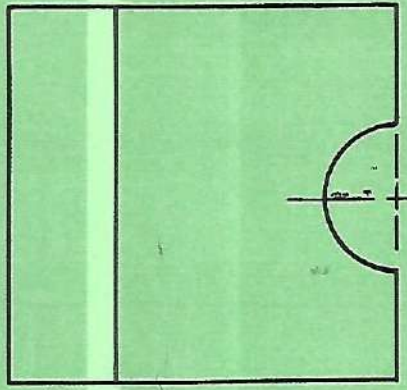
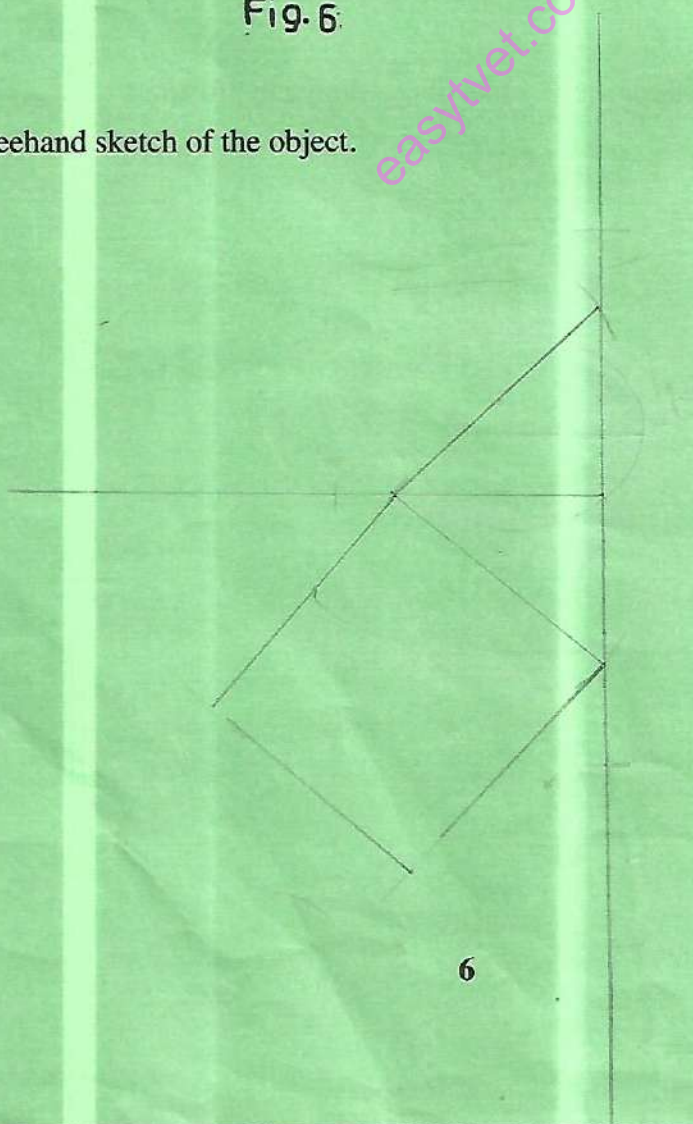


Fig. 6

Make a freehand sketch of the object.

(10 marks)



5/17

SECTION B: CARTOGRAPHY

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

5. (a) With reference to maps and plans, compare Registry Index Maps (R.I.M.S) Survey Plans in terms of the following:
- (i) scale;
 - (ii) grid;
 - (iii) referencing;
 - (iv) parcel identification.
- (8 marks)

- (b) Using illustrations, show how the following land transaction features are used for communication purposes on a survey plan:
- (i) new beacon
 - (ii) traverse points
 - (iii) bearings
 - (iv) surveyed boundary
- (12 marks)

6. (a) Explain how the following instruments are maintained:
- (i) pencils;
 - (ii) technical pens - must be kept absolutely clean & every time ink is exhausted replace by clean
 - (iii) dividers and compass; - must be cleaned immediately after use
 - (iv) scale rules and set squares.
- (12 marks)

- (b) Using illustration, describe the following representation of geographical data on maps:
- (i) point features;
 - (ii) line features;
 - (iii) area features;
 - (iv) volumetric features.
- (8 marks)

7. (a) Outline **four** uses of rectangular grid. *Help in describing the location - To create rectangular coordinate system - Used in Algebra to show relationship between rectangular coordinate system* (4 marks)
- (b) State **three** methods of producing graphic images. (6 marks)
- (c) Define a map. (2 marks)

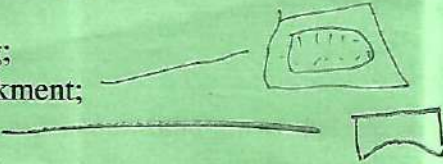
(d) Outline the following terms as used in map lettering giving examples in each case:

- (i) type face;
- (ii) point size;
- (iii) italics;
- (iv) bold face.

(8 marks)

8. (a) With reference to relief representation, show how the following features would be represented on maps:

- (i) cutting;
- (ii) embarkment;
- (iii) crater;
- (iv) quarry.



(8 marks)

(b) Use the information in **Figure 1** to construct a profile from point A to point B.

(12 marks)

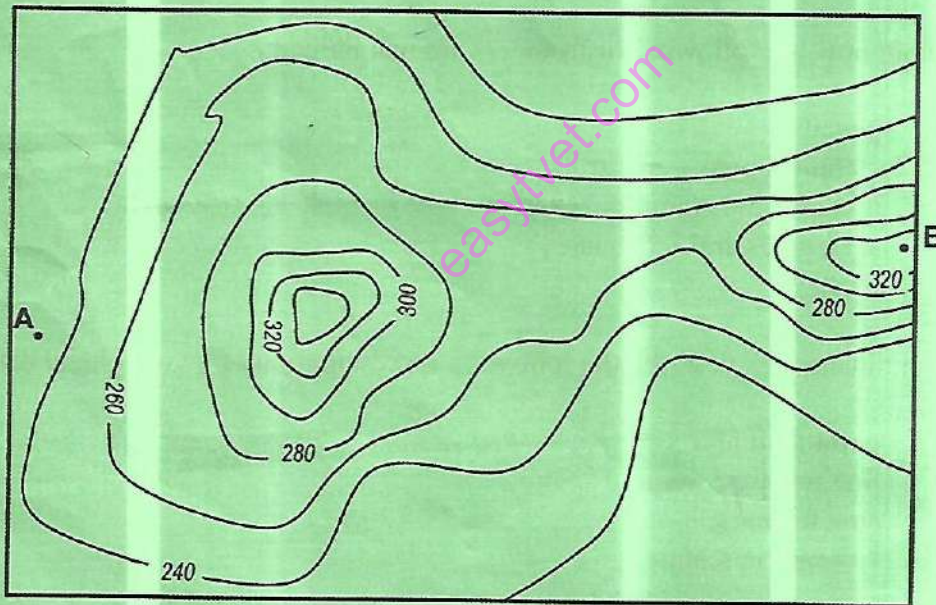


Fig. 1

THIS IS THE LAST PRINTED PAGE.