2501/104
2508/104
ENGINEERING DRAWING I
June/July 2020
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN MECHANICAL ENGINEERING
(PRODUCTION OPTION)
DIPLOMA IN WELDING AND FABRICATION**

MODULE I

ENGINEERING DRAWING I

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
    Drawing instruments;
    Drawing papers A3;
    Scientific calculator.
This paper consists of TWO sections; A and B.
Answer question 1 (COMPULSORY) in section A and FOUR questions from section B.
Maximum marks for each part of a question are indicated.
All dimensions are in millimeters.
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.

Turn over

SECTION A

(COMPULSORY)

1. **Figure 1** shows a casting of a machine part. Draw the following views in first angle orthographic projection to a scale of 1:2:

   (i)   sectional front elevation along cutting plane X-X;

   (ii)   end elevation;

   (iii)   plan.

   Include **six** dimensions and the symbol of the angle of projection.   (40 marks)
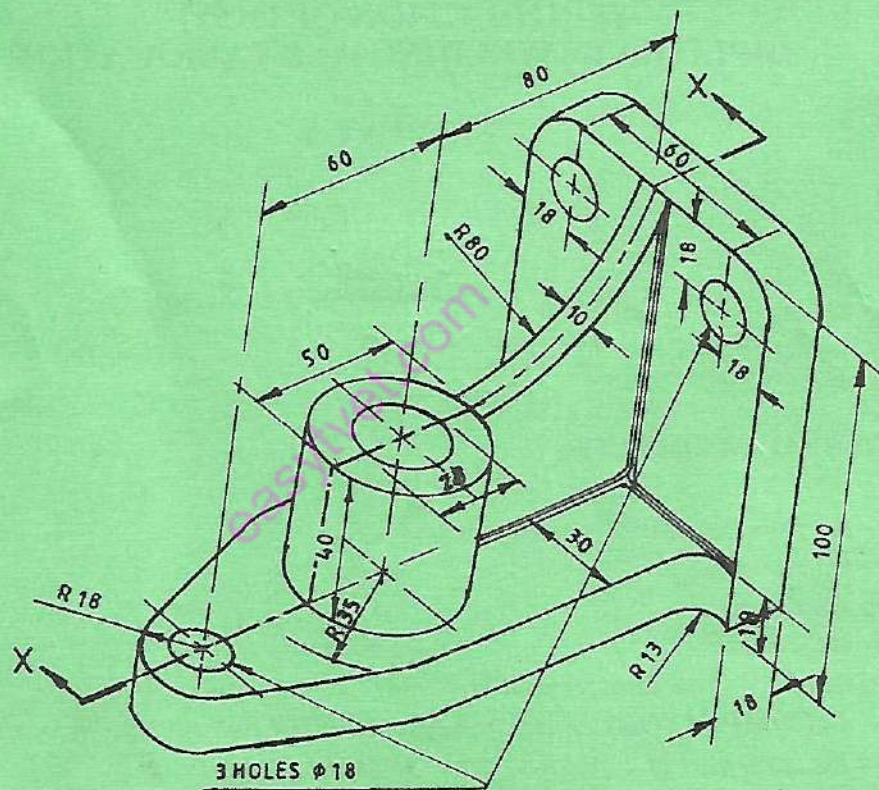

Fig.1

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SECTION B

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

2.   **Figure 2** shows the orthographic views of a bracket. Draw an isometric projection of the bracket with point X as the lowest point.   (15 marks)
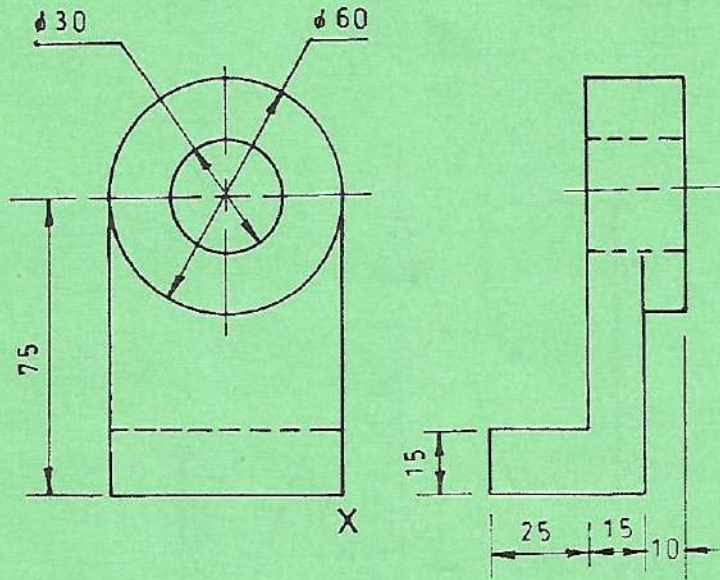

Fig. 2

3.   **Figure 3** shows a mechanism in which crank OA rotates about O, and B is constrained to move along a straight line. The arm CD is perpendicular to ACB. OA = 40 mm, AC = 50 mm, CB = 50 mm, CD = 50 mm.

Construct the locus of point D, when crank OA turns through 360°. Clockwise.   (15 marks)
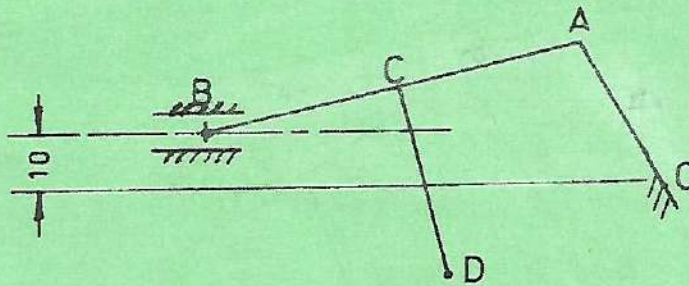

Fig. 3

4. **Figure 4** shows a truncated solid cone. Copy the figure and draw the following in third angle orthographic projection:

    (i)   plan;

    (ii)   end elevation;
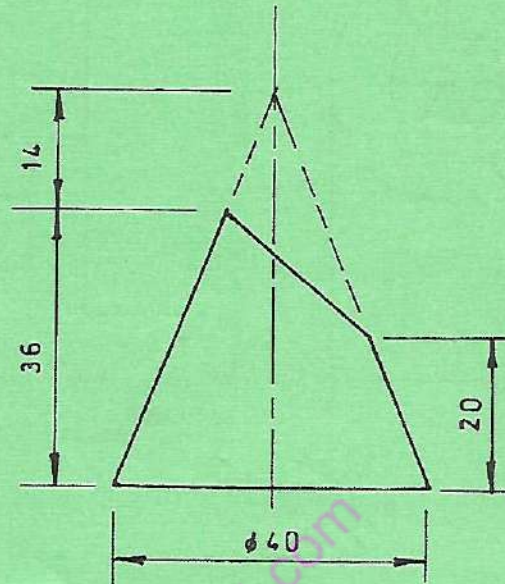
    (iii)   development of the cone.

(15 marks)

Fig. 4

5.   (a)   Draw the pentagon ABCD shown in **Figure 5** and construct a similar figure of ratio 5:3 in area.
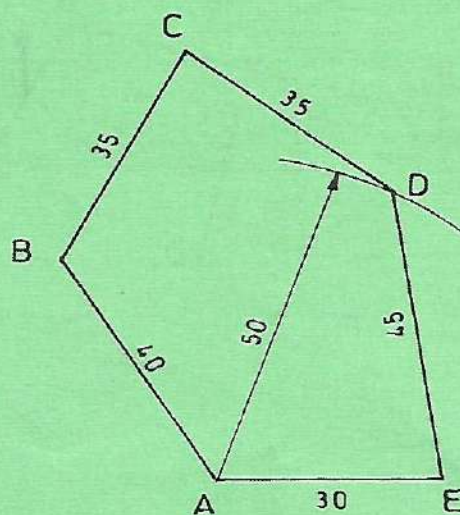
(7 marks)

Fig. 5

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(b)   **Figure 6** shows two points, P and Q. Point P is 45 mm from the centre of the circle and point Q is on the circumference of the circle. Construct a circle passing through point P and Q.
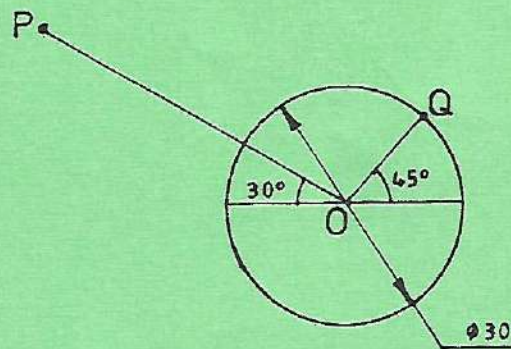
(8 marks)

Fig. 6

6.   **Figure 7** shows the front elevation and plan of a lamina.

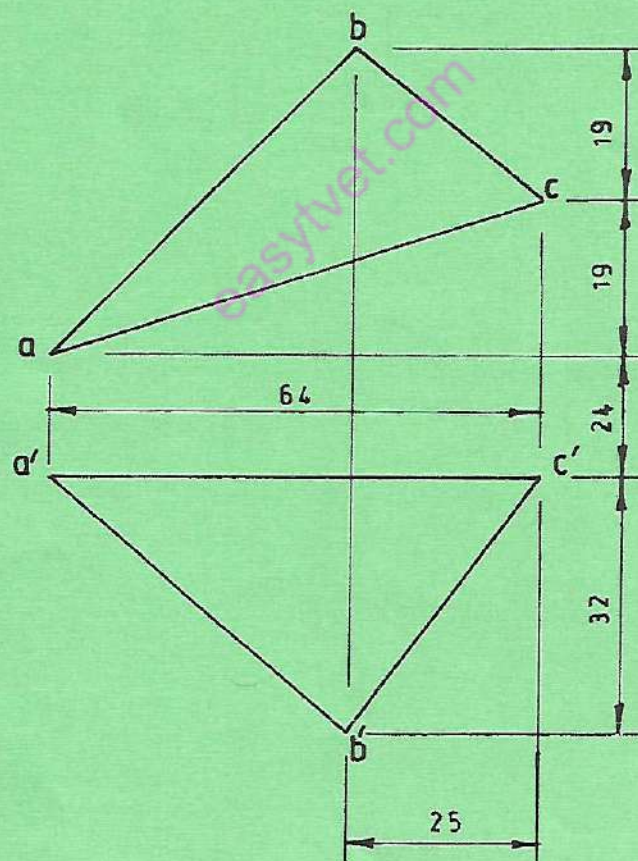Draw the two views and the elevation hence construct the true shape of the lamina.

(15 marks)

Fig. 7

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