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ENGINEERING DRAWING I

June/July 2023

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN MECHANICAL ENGINEERING
(PLANT OPTION)
DIPLOMA IN AUTOMOTIVE ENGINEERING
DIPLOMA IN CONSTRUCTION PLANT ENGINEERING

MODULE I

ENGINEERING DRAWING I

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Drawing papers;

Drawing instruments.

This paper consists of TWO sections; A and B.

Answer Question 1 (compulsory) and any THREE questions from section B.

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

All dimensions are in millimeters unless otherwise stated.

Candidates should answer the questions in English.

This paper consists of 7 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: (Compulsory)

1. **Figure 1** shows a pictorial view of a shaped block. Draw the following views in first angle projection;

- (a) A front elevation in the direction of arrow X;
- (b) An end elevation in the direction of arrow Y;
- (c) A plan view. Include:
 - (i) six major dimensions;
 - (ii) all hidden details;
 - (iii) projection symbol.

(40 marks)

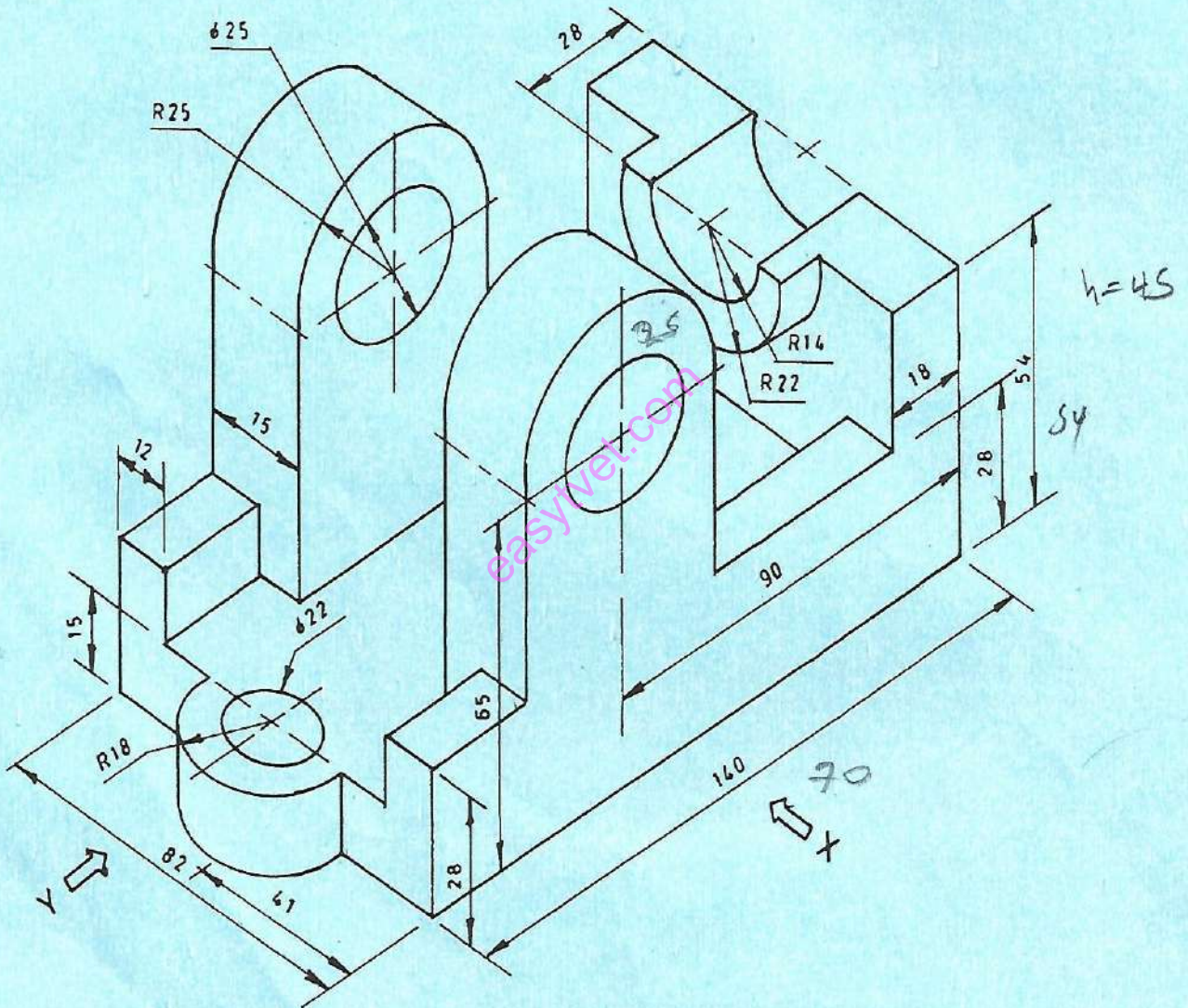


Fig. 1

SECTION B

Answer any **THREE** questions from the section.

2. **Figure 2** shows the intersection between two unequal pipes, copy the given views and:

(a) Complete the given views.

(b) Draw the surface development of the smaller pipe slit along X - X.

(20 marks)

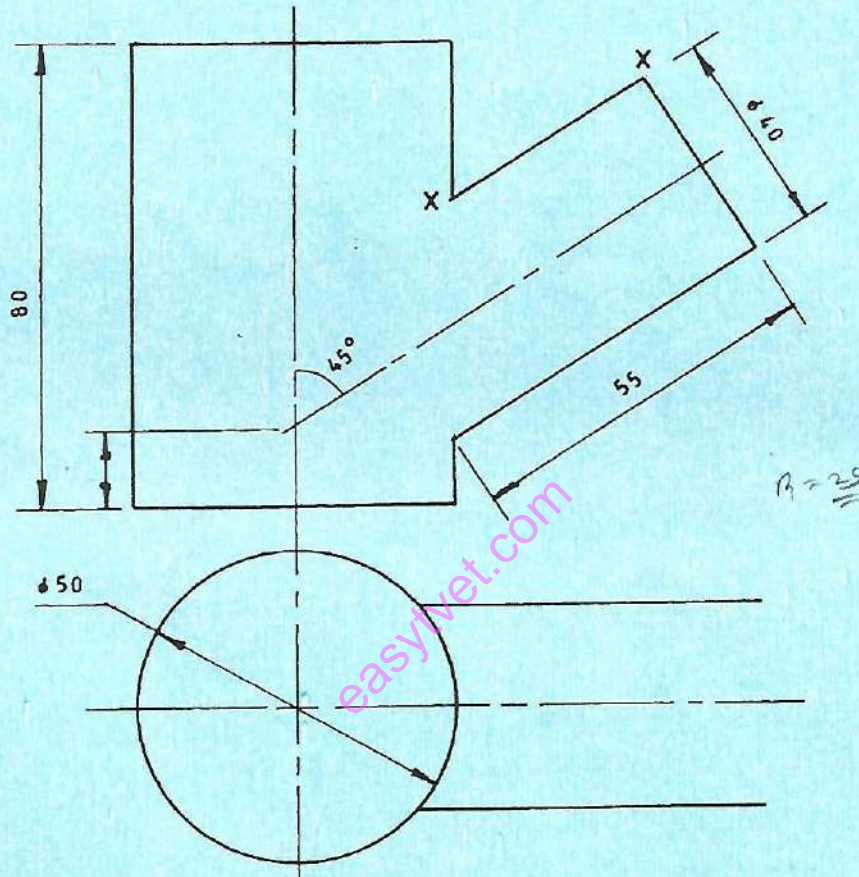


Fig. 2

- (b) Two views of a lamina are shown in **figure 4**. Copy the given views and determine the true shape of the lamina. (8 marks)

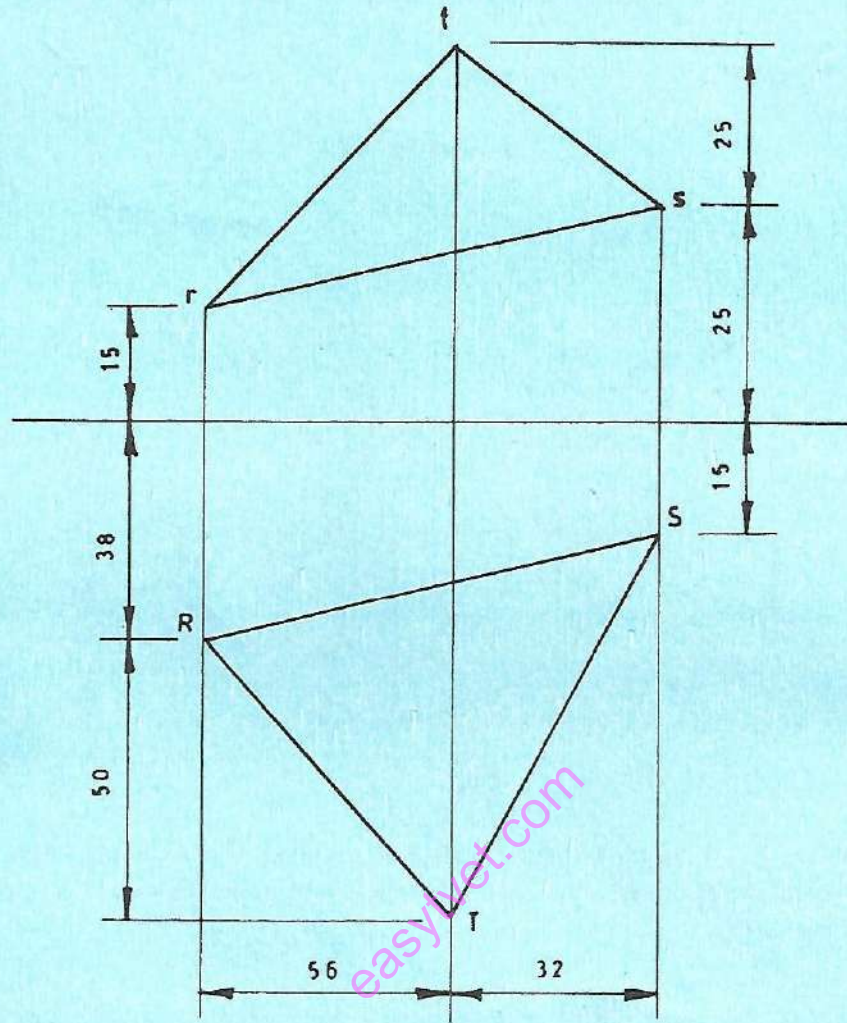


Fig. 4

4. ✓ (a) **Figure 5** shows a machine gasket. Draw the gasket in full size and show all the construction lines. (10 marks)

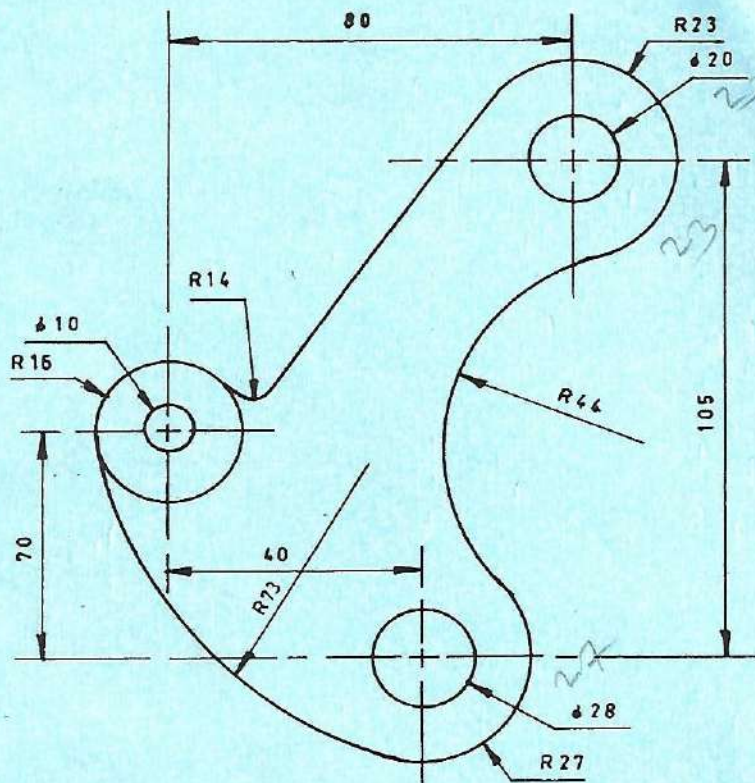
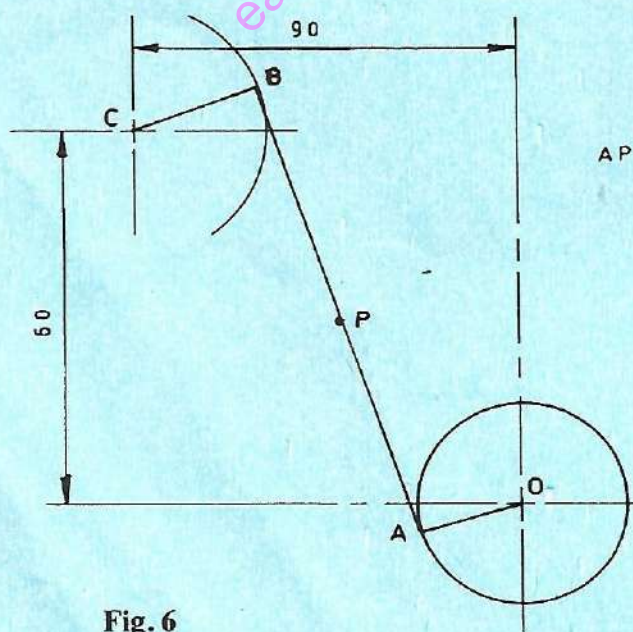


Fig. 5

- (b) The crank OA in **figure 6** rotates clockwise about O . The line AB is attached to a rod CB which swings about C . Construct the locus of point P for one complete revolution of OA . (10 marks)



$$\begin{aligned} OA &= 20 \\ CB &= 30 \\ AP &= BP = 50 \end{aligned}$$

Fig. 6

5. (a) Construct a triangle with a perimeter of 150 mm and side in the ratio of 3:5:6. (6 marks)
- (b) Construct the figure 7 shown. (8 marks)

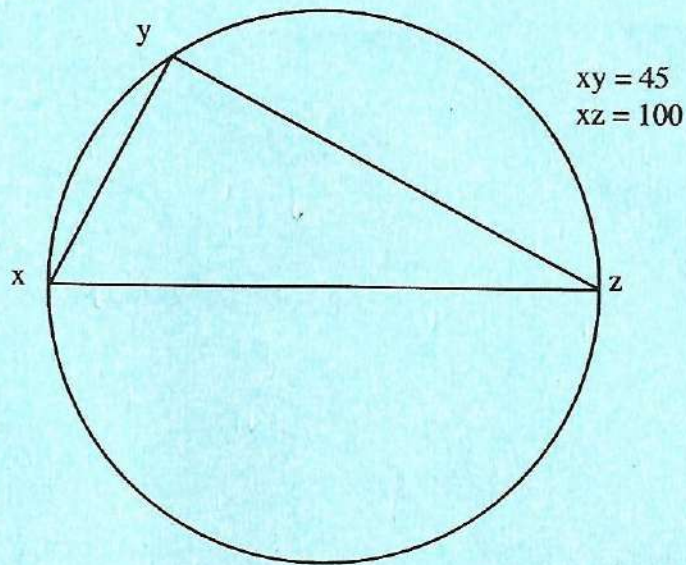


Fig. 7

- (c) A triangle has sides 80, 86 and 40 mm long. Construct the triangle and convert it into a square of equal area. (6 marks)

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