1503/104
TECHNICAL DRAWING
June/July 2017
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN AUTOMOTIVE ENGINEERING

MODULE I

TECHNICAL DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
Drawing instruments;
A3 drawing papers.
*This paper consists of **THREE** sections; **A**, **B** and **C**.*
*Answer a total of **FIVE** questions as follows:*
*Answer **question 1** (compulsory) in section **A**, **TWO** questions from section **B** and **TWO** questions from section **C**.*
Maximum marks in each question are indicated.
All dimensions are in millimetres.
Candidates should answer the questions in English.

This paper consists of 6 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

*This question is **compulsory**.*

1. Figure 1 shows an isometric view of a machine block. Draw the following views in 1st angle projection:

   (a) Front elevation in the direction of arrow F;
   (b) an end view;
   (c) a plan.
   - indicate six major dimensions.
   - show all the hidden details.

(40 marks)

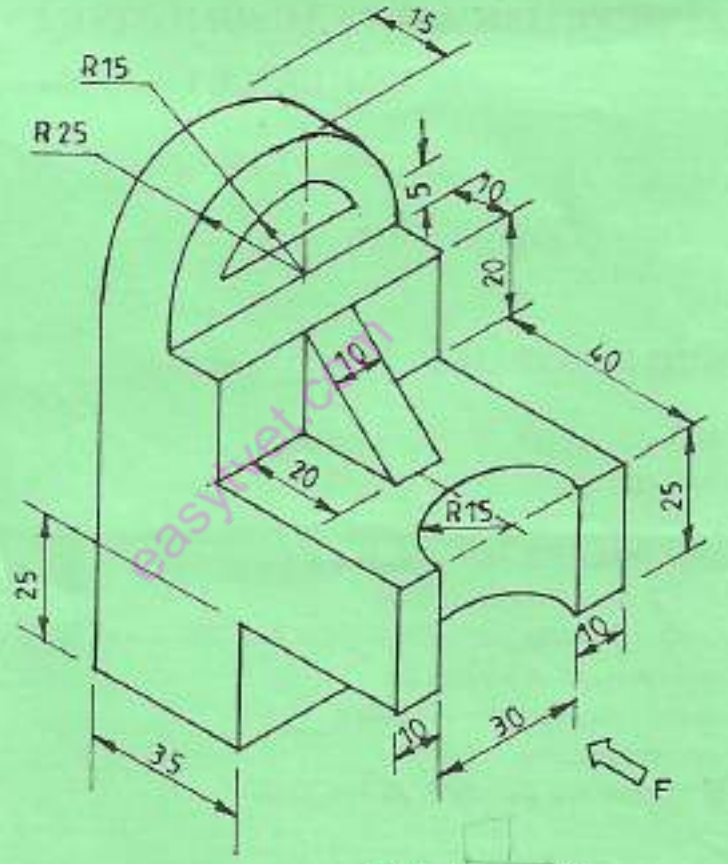
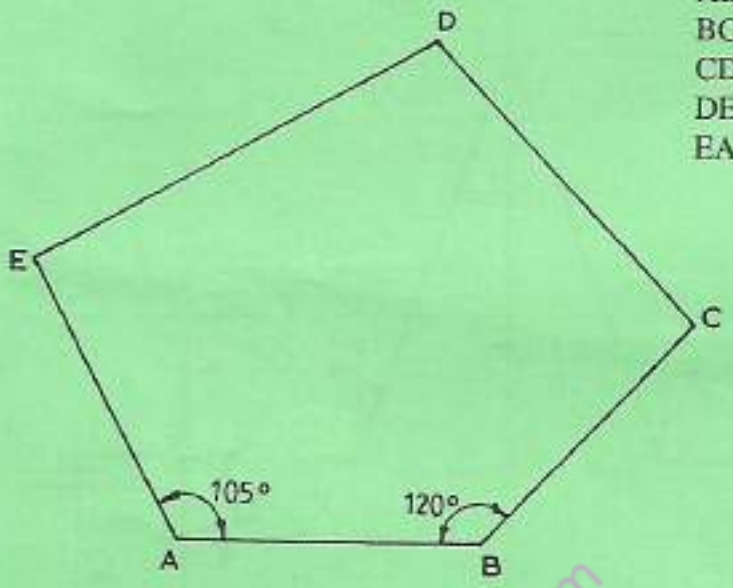


Fig. 1

SECTION B

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

2. Figure 2 shows a metallic template ABCDE. Draw the template such that the new area is $\frac{4}{7}$ of the original area. Take A to be the centre of reduction. (15 marks)



AB = 50
BC = 40
CD = 60
DE = 80
EA = 50

Fig. 2

3. Draw a parabola with an eccentricity of $\frac{1}{2}$ given the relative positions of the focus and the directrix as 20 mm apart. Plot up to a distance of 80 mm. (15 marks)

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4. Figure 3 shows a cone intersected diametrically by two pipes of equal diameter, on both sides. Copy the given view and:

(a) complete the front elevation and the plan showing the line of intersection.

(b) draw the surface development of pipe B.

(15 marks)

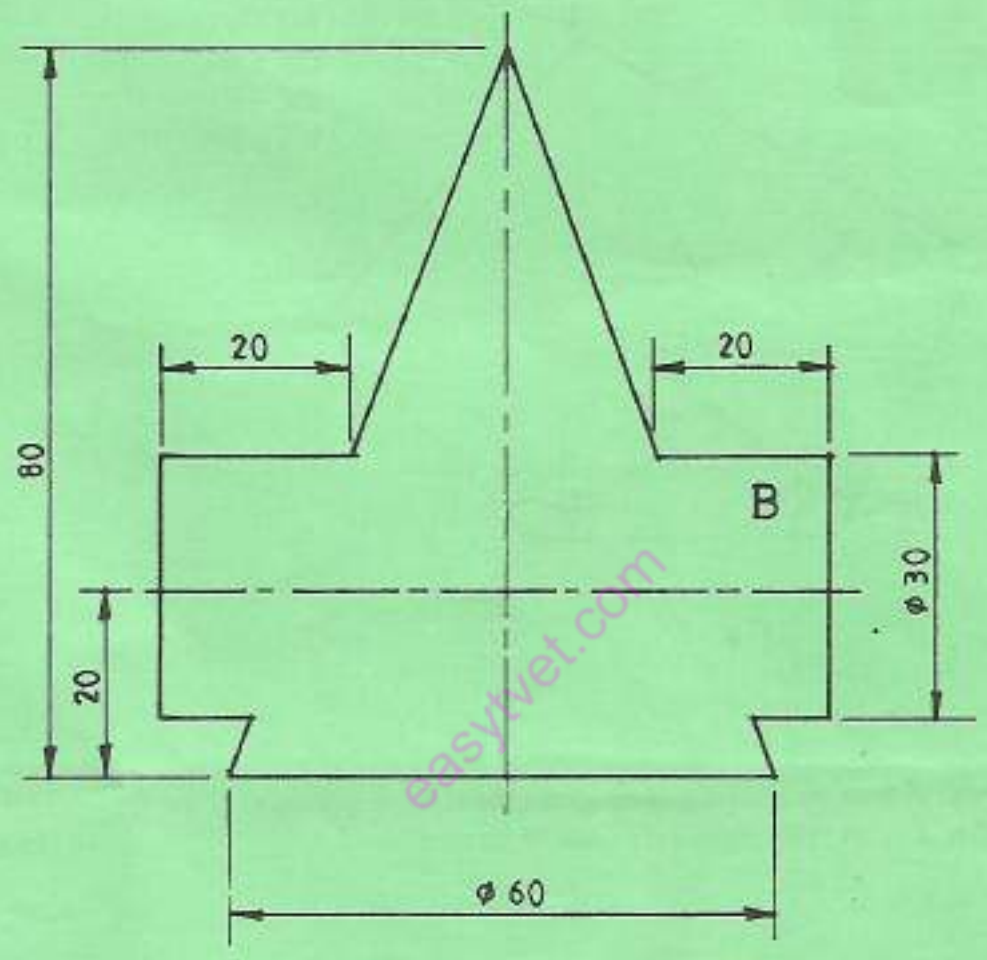

Fig. 3

SECTION C

Answer any TWO questions from this section.

5. Figure 4 shows two orthographic views of a machine block. Draw the block in isometric projection with corner R as the lowest point. (15 marks)

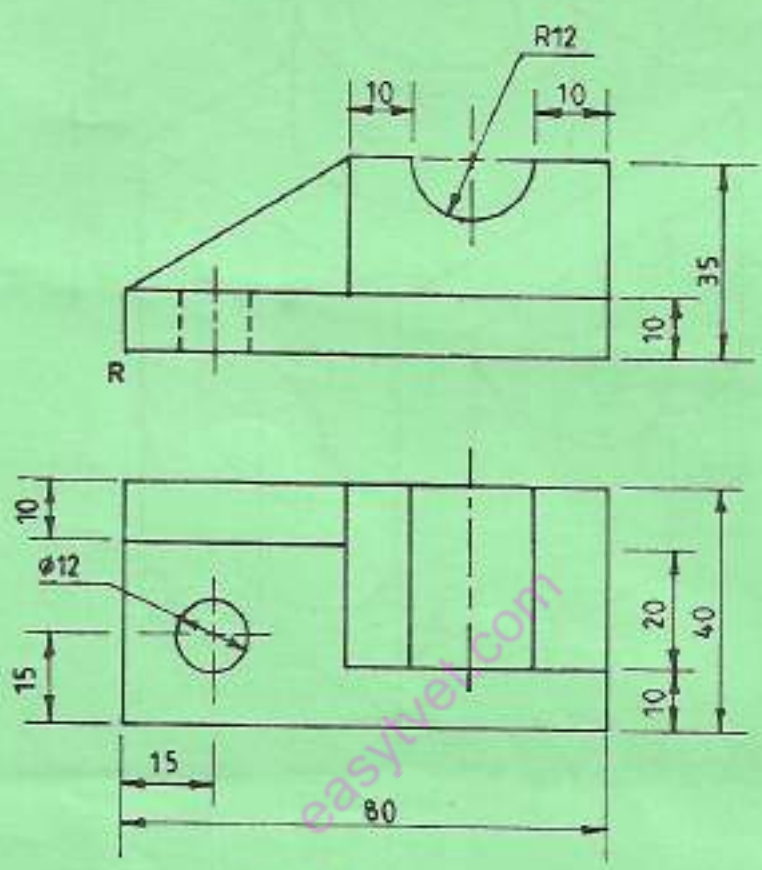

Fig. 4

6. Sketch the following:

(a) pop rivet; (3 marks)
(b) poppet valve; (3 marks)
(c) snap ring pliers (external); (4 marks)
(d) spark plug. (5 marks)

7. Figure 5 shows a pictorial view of a yoke. Draw half size the yoke in isometric projection.
(15 marks)

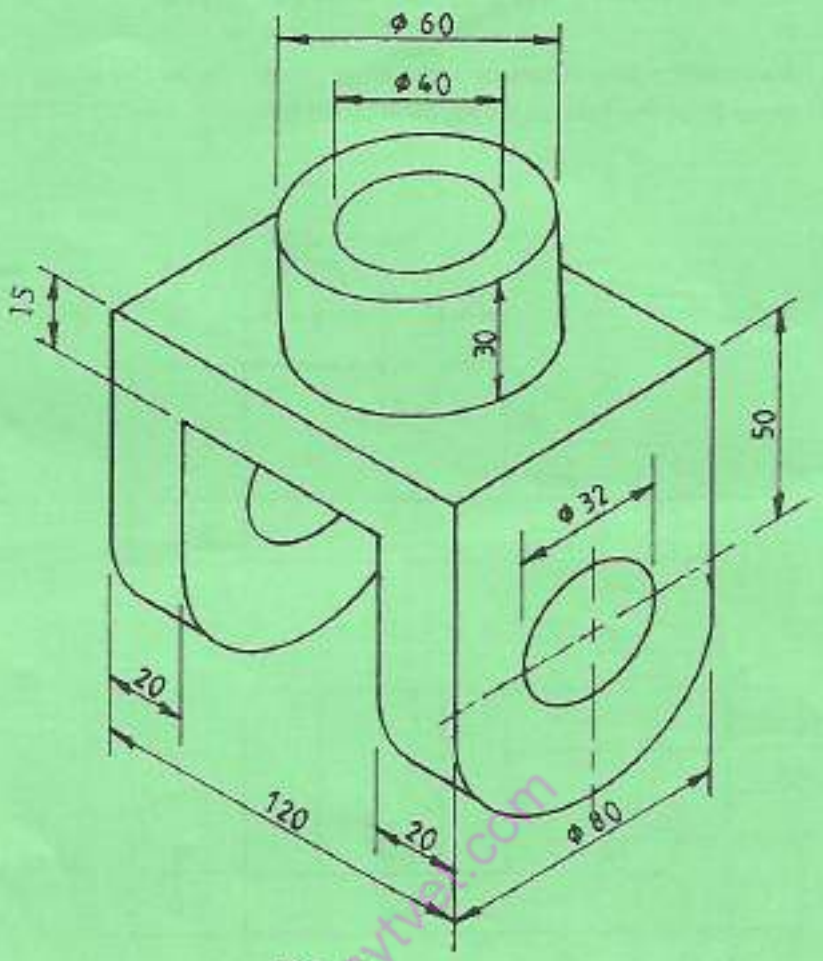

Fig. 5

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