

1503/104
TECHNICAL DRAWING
June/July 2023
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 paper(s).*

*This paper consists of **THREE** sections; A, B and C.*

*Answer a total of **FIVE** questions as follows:*

*Question **ONE** (compulsory);
TWO questions from section B;
TWO question from section C.*

Maximum marks for each part of a question are indicated.

All dimensions are in millimetres.

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

(Compulsory)

1. Figure 1 shows a pictorial view of a bracket. Draw full size in first angle projection the following views:

- (a) A front elevation in the direction of arrow F.
- (b) an end elevation in the direction of arrow E.
- (c) A plan.

- Insert six major dimensions.
- Include hidden details and symbol of projection.

(40 marks)

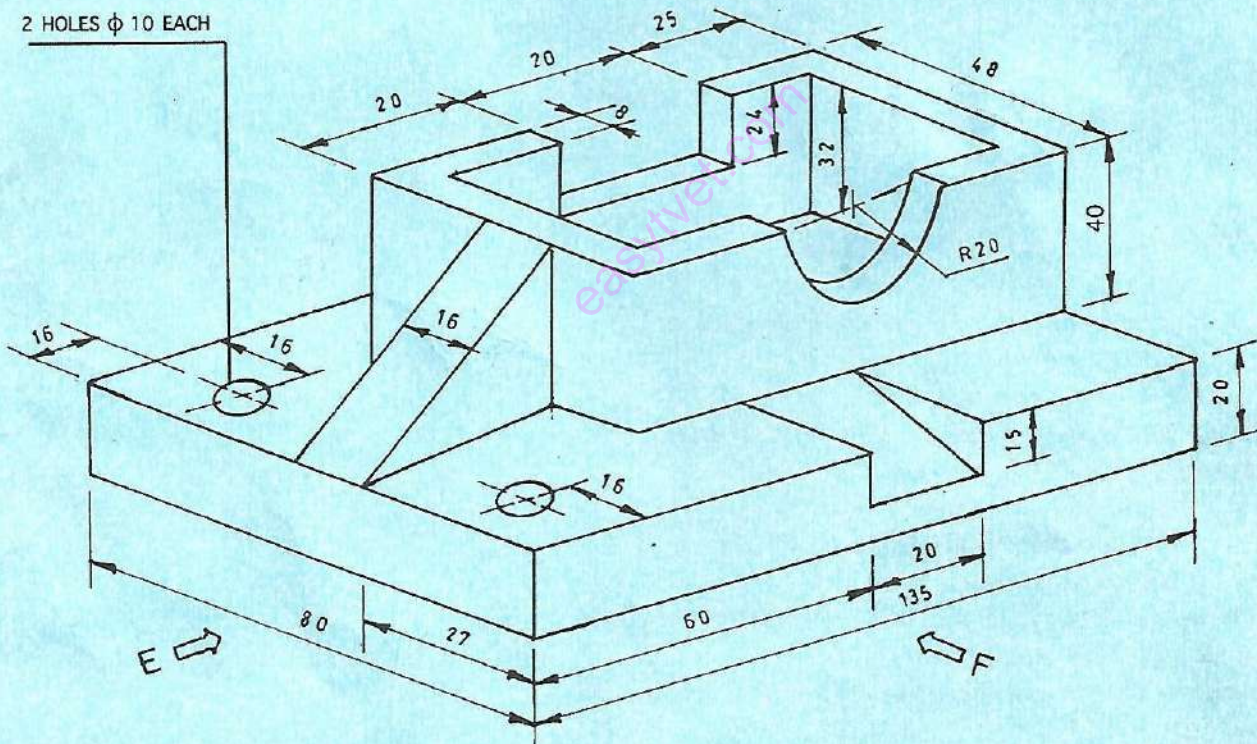


Fig. 1

SECTION B

Answer **TWO** question from this section.

2. (a) Construct an ellipse with major and minor diameters as 100 mm and 60 mm respectively, using the concentric circle method. (7 marks)
- (b) construct the locus of a point which moves so that its distance from a fixed point and a perpendicular distance from a straight line placed 20 mm apart is in the ratio of $\frac{3}{2}$. Name the locus. (8 marks)
3. (a) Construct a regular hexagon of side 40 mm. (7 marks)
- (b) Draw two circles of radii 18 mm and 43 mm with their centres 94 mm apart. Construct a common internal tangent to the two circles. (8 marks)
4. Figure 2 shows the views of two intersecting cylinders. Copy the given views and draw;
- (a) line of intersection;
- (b) surface development of the small cylinder cut along X-X. (15 marks)

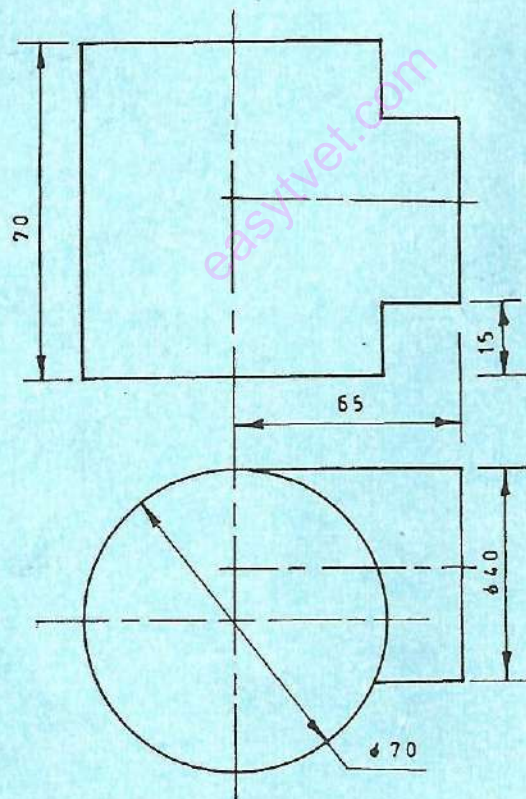


Fig. 2

SECTION C

Answer at least *TWO* questions from this section.

5. Sketch the following workshop tools:

- (a) anvil.
- (b) straight tinsnips.
- (c) pair of dividers.

(15 marks)

6. Figure 3 shows views of a block drawn in first angle projection. Construct the block in isometric projection with corner Y as the lowest point. (15 marks)

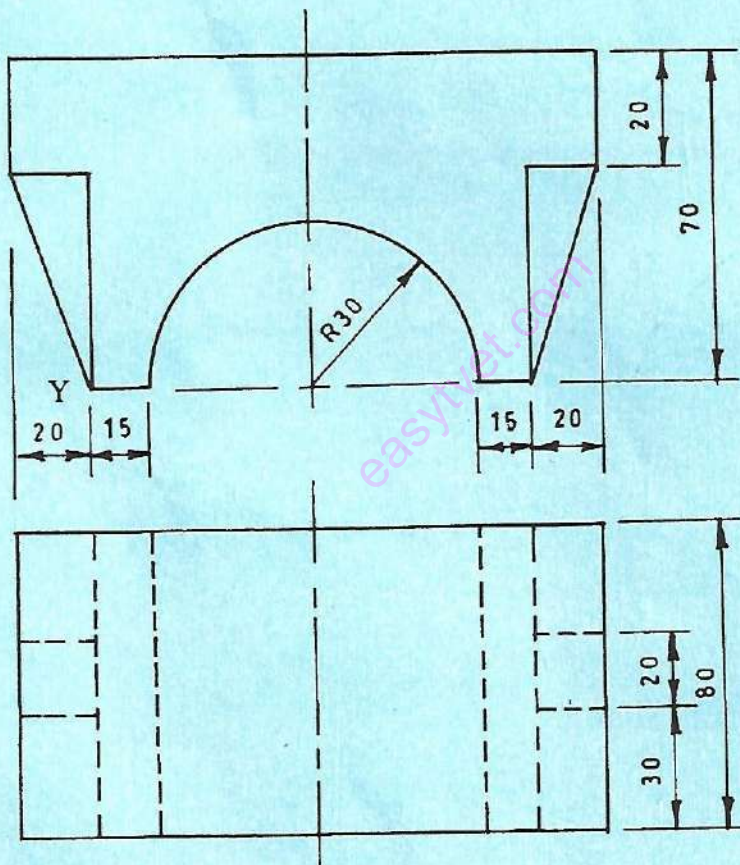


Fig. 3

7. Figure 4 shows a machined bracket. Draw the bracket in isometric projection. (15 marks)

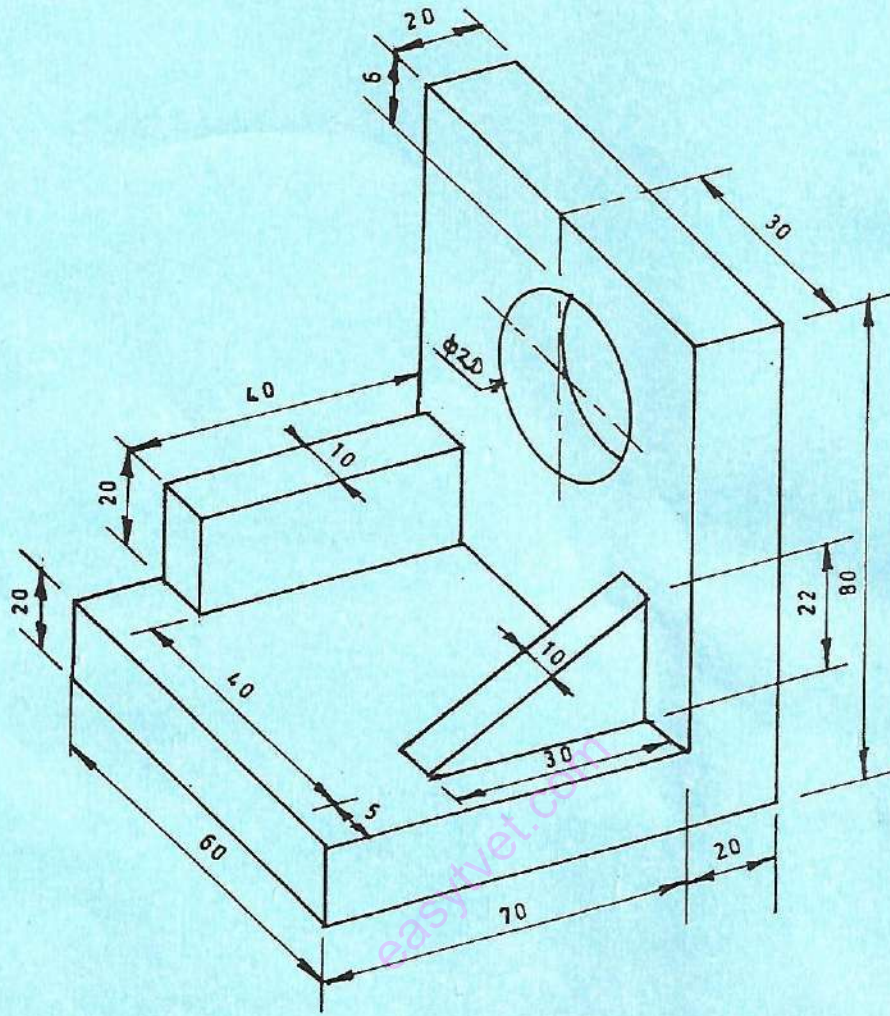


Fig. 4

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