

1503/104

TECHNICAL DRAWING

Oct./Nov. 2021

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.

Answer booklet;

Drawing instruments;

Drawing papers.

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

Answer question **I** (compulsory) in section **A** and any **TWO** questions from section **B** and any **TWO** questions from section **C**.

Maximum marks to each part of a question are indicated.

All dimensions are in millimeters unless otherwise stated.

Estimate any dimensions that are not given.

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.

SECTION A (Compulsory)

1. Figure 1 shows a cast iron block. Draw the following views in first angle projection.

- (a) A sectional front elevation on cutting plane X-X;
- (b) An end elevation in the direction of arrow E;
- (c) A plan:

- show hidden details
- include six major dimensions.

(40 marks)

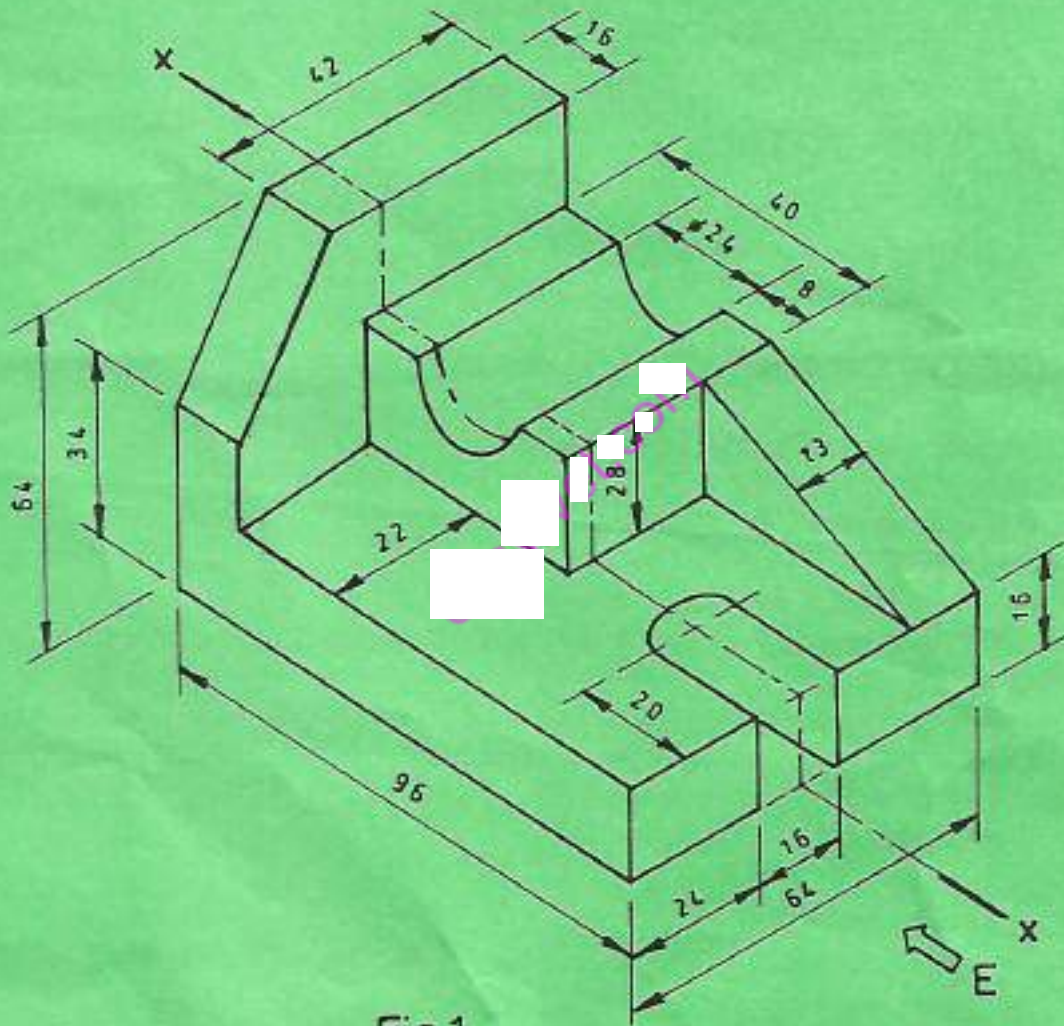


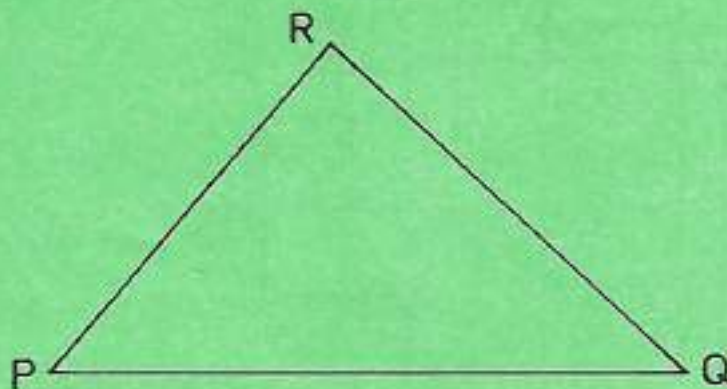
Fig.1

SECTION B

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

2

- (a) Construct an internal tangent for two circles whose centres are 100 mm apart and have their radii 40 mm and 70 mm respectively. (7 marks)
- (b) Figure 2 shows a triangle PQR. Construct a square of same area as the triangle. (8 marks)



$$PQ = 100$$

$$QR = 70$$

$$PR = 60$$

Fig. 2

3

- (a) Construct an ellipse with major and minor axes 120 mm and 80 mm respectively. (7 marks)
- (b) Construct the locus of a point on a wheel initially in contact with the ground, of radius 20 mm that rolls on a curved path of radius 70 mm without slipping. Name the locus. (8 marks)

4. Figure 3 shows the intersection of two cylinders. Copy the given views then:

- (i) complete the front elevation;
- (ii) complete the plan;
- (iii) draw the surface development of the small cylinder.

(15 marks)

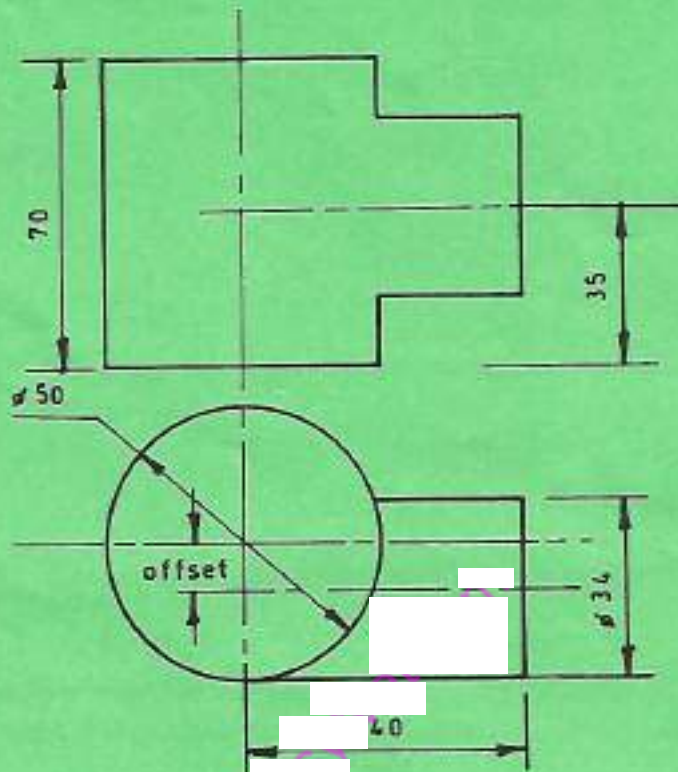


Fig 3

SECTION C

Answer *TWO* questions from this section.

5. Figure 4 shows orthographic views of a bearing bracket. Draw the bracket in isometric projection with corner X as the lowest point. (15 marks)

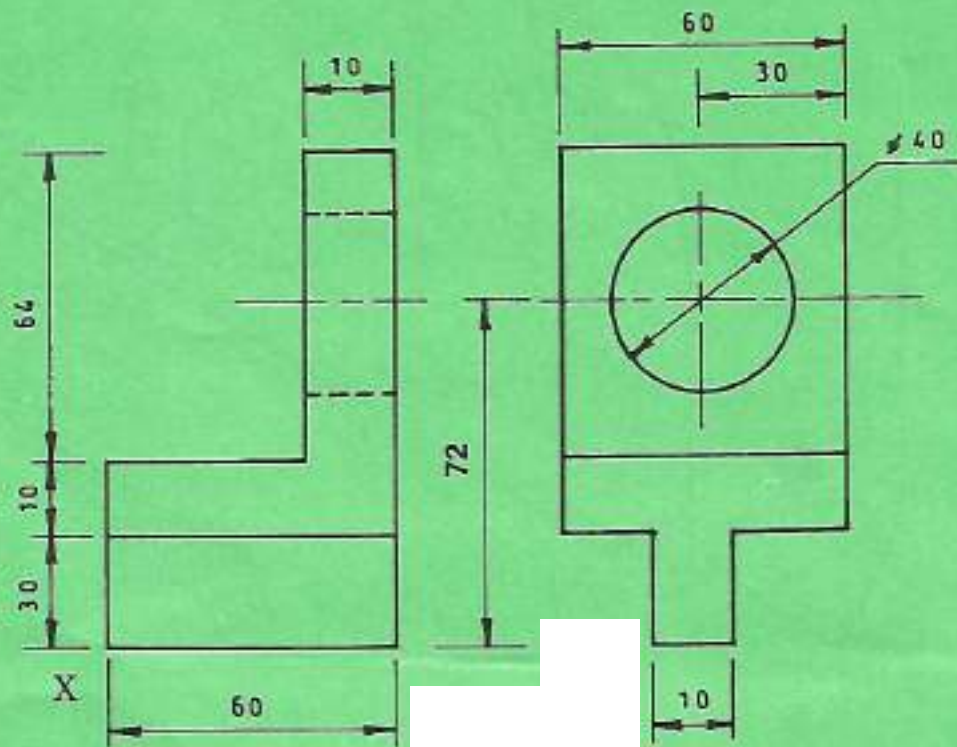


Fig. 4

6. (a) Sketch the following tools:

- (i) rubber mallet;
- (ii) body file;
- (iii) pop rivet.

(15 marks)

7 Figure 5 shows a machine bracket. Draw it in isometric projection. (15 marks)

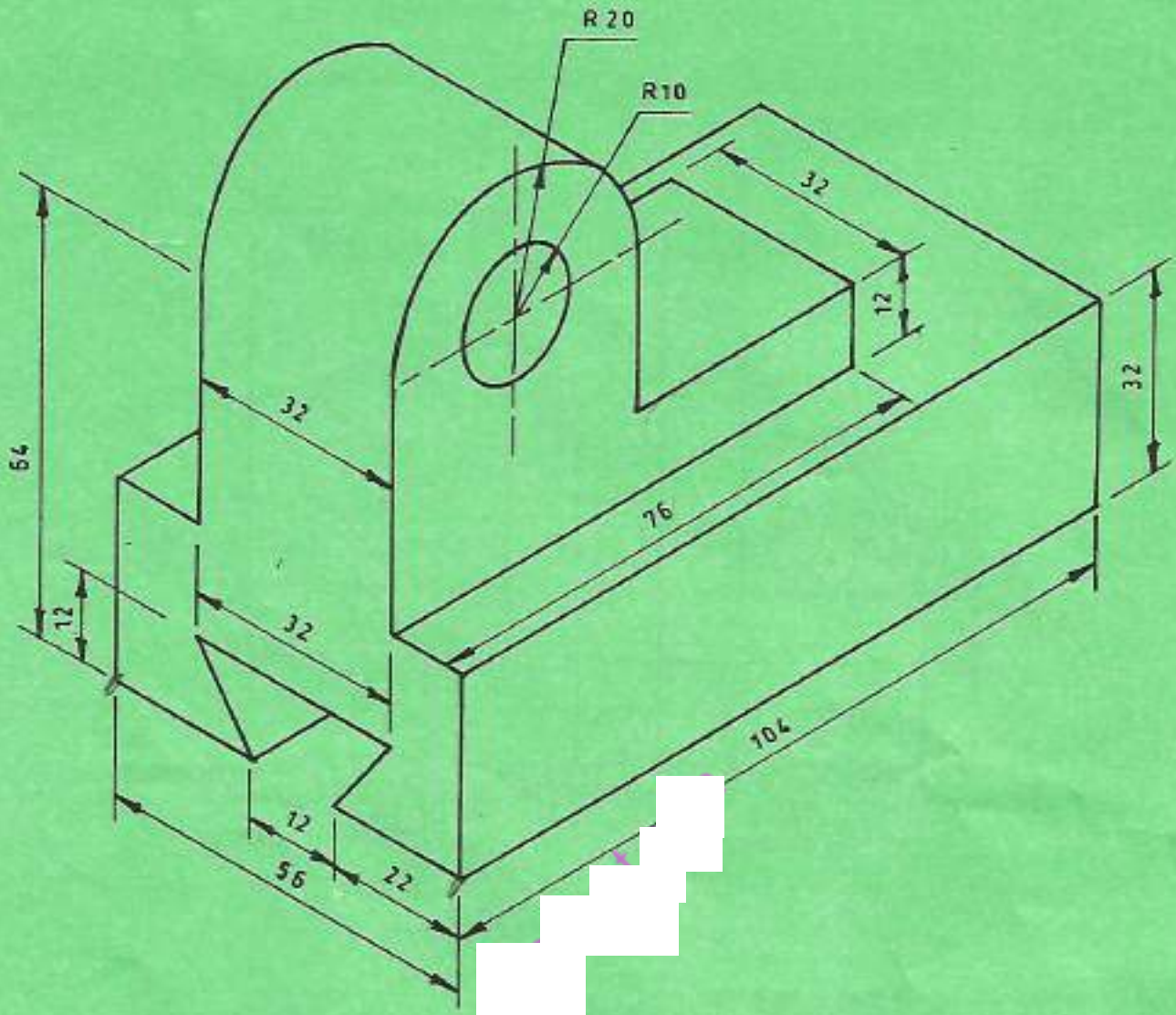


Fig.5

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