MECHANICAL DRAWING

TUESDAY, 24 JUNE - MORNING, 9.30 to 12.30

400 marks

INSTRUCTIONS

(a) <u>Five</u> questions to be answered; one of these <u>must</u> be question No. 1, Section A. <u>Two</u>
    must be selected from Section B and <u>two</u> must be selected from Section C.
(b) All questions carry equal marks. A maximum of 12 marks will be awarded for draughts-
    manship in respect of each question and a maximum of 20 marks will be awarded for
    neatness, arrangement and presentation of answer sheets.
(c) The number of the question must be distinctly marked by the side of each question.
(d) Work on one side of the paper only.
(e) Examination number must be distinctly marked on each sheet of paper used.
(f) All construction lines must be clearly shown.
(g) All measurements are in millimetres.

SECTION A

(This question must be attempted)

1. A shaped solid is shown in fig. 1. Make a full-size orthographic projection of the
solid showing:-

   (a) an elevation looking in the direction of arrow X,
   (b) an end-view looking in the direction of arrow Y,
   (c) a plan projected from (a).

SECTION B

(Two questions to be attempted from this section)

2. Fig. 2 shows the elevation and incomplete plan of a cylinder and square prism cut by a
plane inclined at 60°.

   (a) Draw full-size the elevation and complete the plan of the cut solids.
   (b) Draw an end-view looking in the direction of arrow A.

3. The elevation and plan of a solid are shown in fig. 3.
   Draw a full-size isometric view of this solid.

OR

   Using the <u>isometric</u> grid paper provided make a neat well-proportioned <u>freehand</u> sketch of
the solid shown in fig. 3. Insert all necessary dimensions on the sketch.

4. A sketch of a small shovel is given in fig. 4. The shape of the material which is bent
to form the shovel is also given.
   Ignoring thickness draw full-size:-

   (a) an elevation looking in the direction of arrow A,
   (b) a plan projected from the elevation,
   (c) an end-view looking in the direction of arrow B.

5. The plan of a regular pentegonal prism of side 40 mm is given in fig. 5. The prism is
cut as shown.

   (a) Draw full-size the plan as given.
   (b) Project the elevation from the plan.

SECTION C

(Two questions to be attempted from this section)

6. (a) Draw full-size the quadrilateral ABCD shown in fig. 6 given that the length of side
       CD is $\frac{7}{8}$ that of side AD.
   (b) Construct a triangle to have the same area as quadrilateral ABCD.

7. The outline of a metal blank is given in fig. 7.
   Construct full-size this outline showing clearly all construction lines.

8. Draw full-size the shape shown in fig. 8.
   This shape is rotated about the centre of the circle in which it is contained so that
point 'A' moves to 'B'. Draw the shape in its new position.

9. The design shown in fig. 9 is made up of an ellipse and two regular hexagons. The
ellipse meets the hexagons on the vertices as shown.
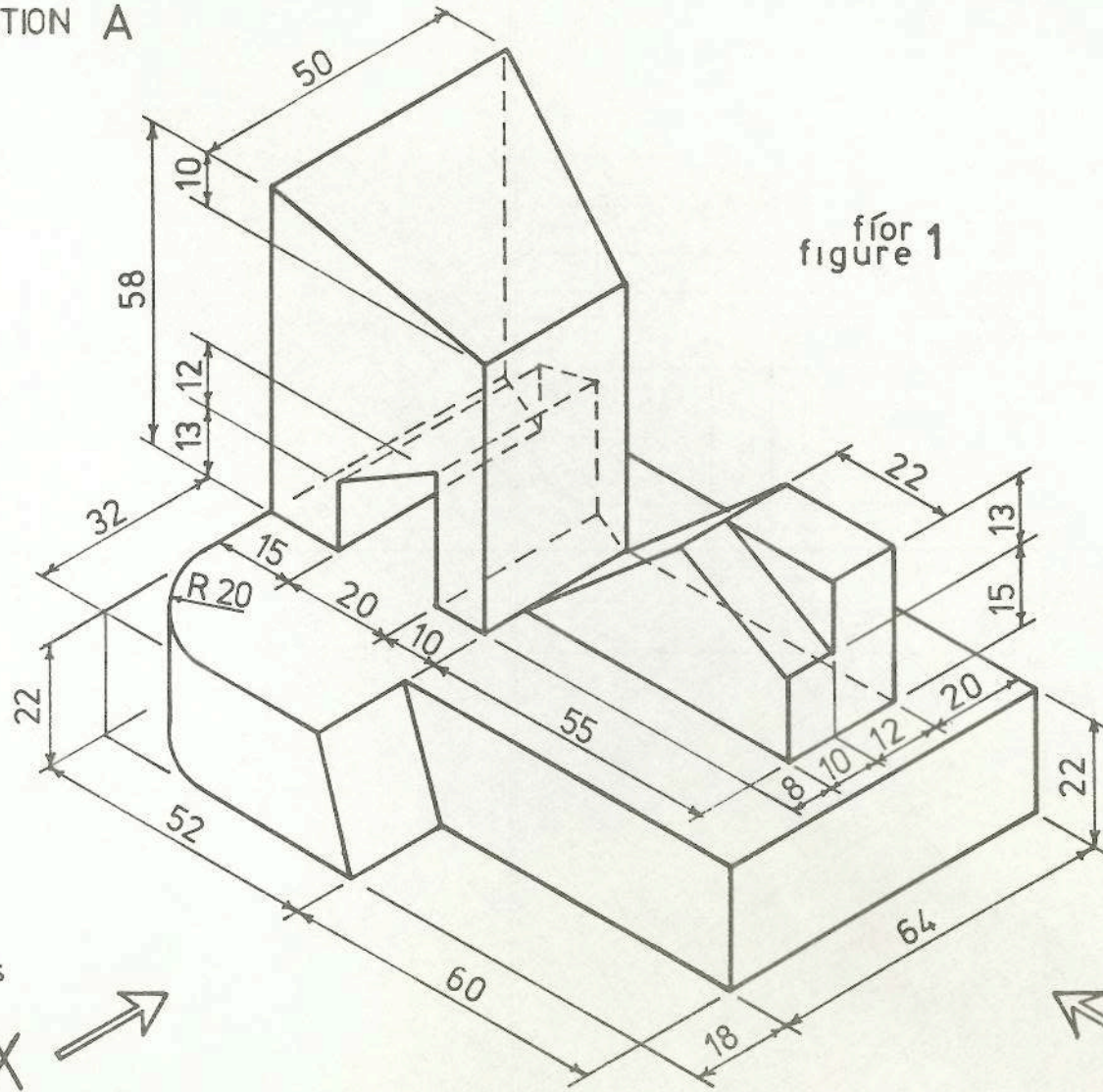   Draw this design full-size showing clearly all construction lines.

ROINN A ——— SECTION A

fíor figure 1

50
10
58
13 12
32
15
R 20
20
10
22
52
60
18
22
13
15
20
55
8 10 12
64
22

Tá na toisí uile i milliméadair
All measurements are in millimetres

X

Y
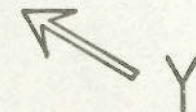
THALL
OVER

ROINN B ——— SECTION B

ROINN C ——— SECTION C

fíor figure 2

fíor figure 3

fíor figure 6

fíor figure 7

fíor figure 4

fíor figure 5

fíor figure 8

fíor figure 9