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 INTERMEDIATE CERTIFICATE EXAMINATION, 1988

MECHANICAL DRAWING

FRIDAY, 17 JUNE - AFTERNOON, 2.00 to 5.00

400 marks

INSTRUCTIONS

- (a) Five questions to be answered; one of these must be question No. 1, Section A. Two must be selected from Section B and two must be selected from Section C.
- (b) All questions carry equal marks.
- (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.)

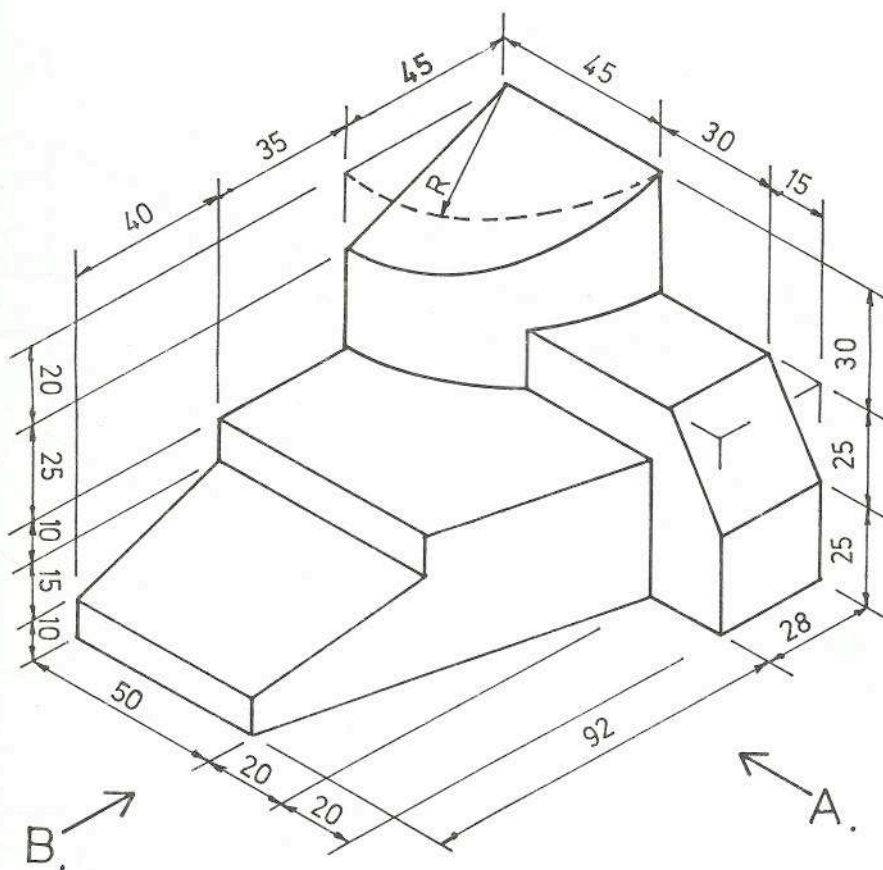


Fig. 1

1. A shaped solid is shown in Fig. 1. Make a full-size drawing of this solid in orthographic projection showing:-

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

First or Third angle projection may be used.

SECTION B

(Two questions to be attempted from this Section.)

2. Fig. 2 shows the elevation and plan of a solid. The plan of the solid contains a regular pentagon.

- (a) Draw the plan and elevation of the solid.
- (b) Project an end-view.
- (c) Show the true shape of the top surface of the solid.

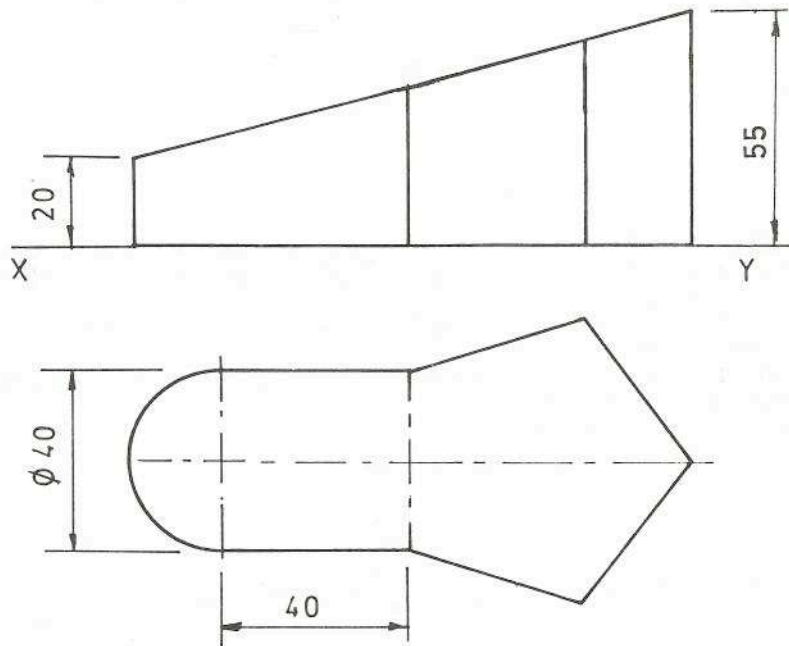


Fig. 2

3. (a) A cone has a base diameter of 50 mm and an altitude of 65 mm. Draw the development of the curved surface of the cone.
- (b) The elevation and plan of a solid are given in Fig. 3. Draw the elevation and plan and draw the development of all the surfaces of the solid.

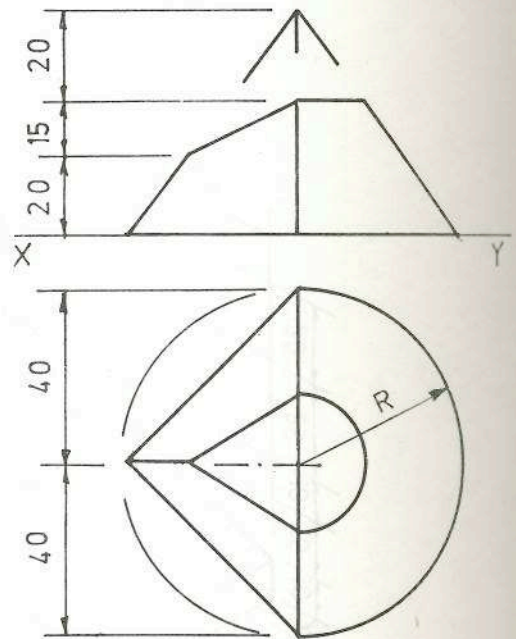


Fig. 3

4. Fig. 4 shows the plan of an equilateral triangular pyramid whose altitude is 60 mm and two spheres which are in contact with the sloping faces of the pyramid. All the solids rest on the horizontal plane.

Draw the elevation and plan of the solids and project an end-view.

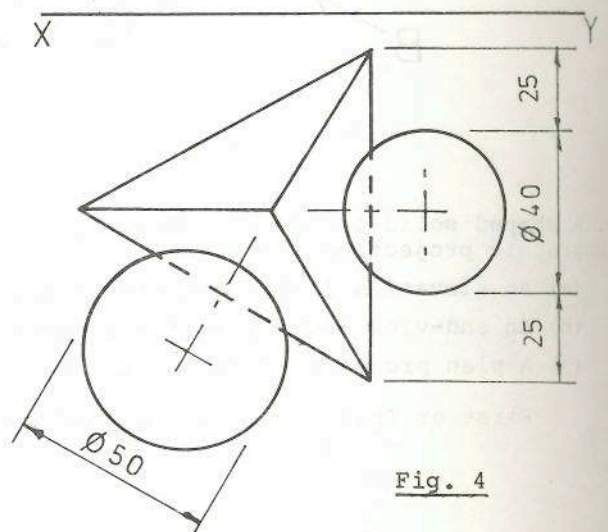


Fig. 4

5. The elevation and end-view of a shaped solid are shown in Fig. 5.

(a) Make a full-size Isometric drawing of this solid.

or

(b) Using the isometric grid paper provided make a neat well-proportioned FREEHAND sketch of the solid shown in Fig. 5.

Insert all dimensions on the sketch.

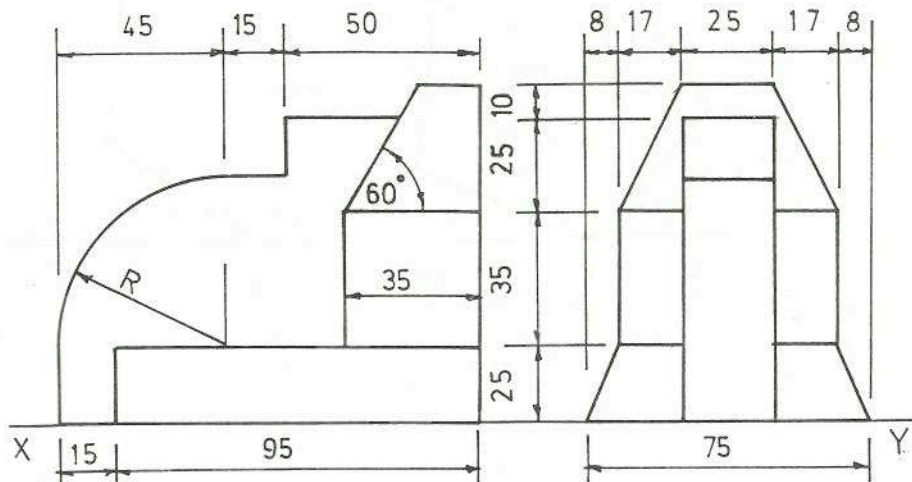


Fig. 5

SECTION C

(Two questions to be attempted from this Section.)

6. (a) The outline of a design is shown in Fig. 6. Draw this outline to the given dimensions showing clearly all tangency points for the arcs.

(b) Draw a square A of side 60 mm and another square B which will have 1.5 times the area of square A. Inscribe square A in square B so that the vertices of square A lie on the sides of square B.

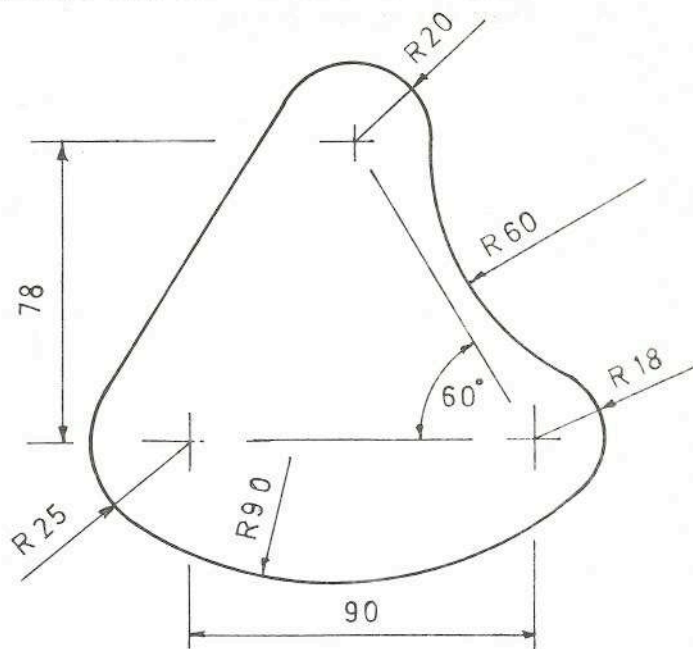


Fig. 6

7. In Fig. 7 the perimeter of the triangle ABC is 350 mm and the sides of the triangle ACD are in the ratio 3 : 5 : 7.

(a) Draw the given figure.

(b) Draw a line from D which shall divide the area of the quadrilateral ABCD into two equal parts.

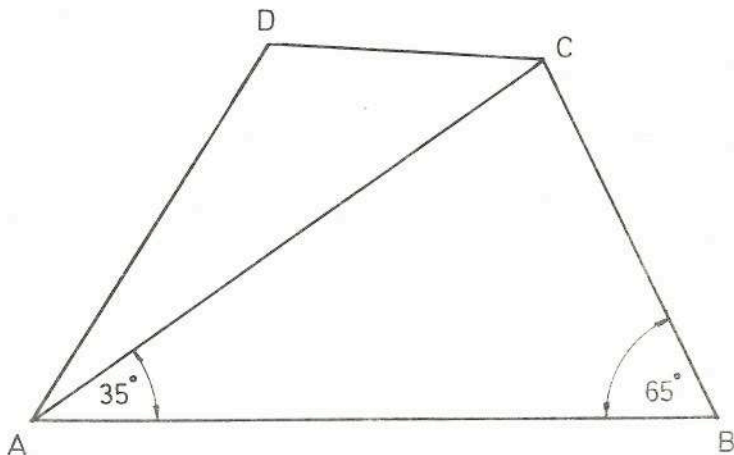


Fig. 7

8. (a) Draw a regular pentagon ABCDE in which the distance from A to C is 75 mm.
 (b) The diagram shown in Fig. 8 contains a regular hexagon and a regular pentagon. Draw the given figure.

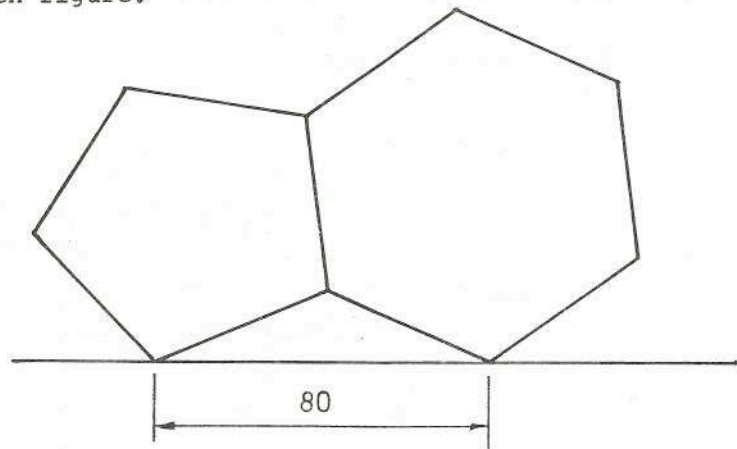


Fig. 8

9. Fig. 9 shows a design containing a semi-ellipse with major axis of 120 mm. The lines AB and CD are normals to the curve. The curve EFG is part of an ellipse whose major axis is 100 mm and minor axis is 60 mm. Draw the given design.

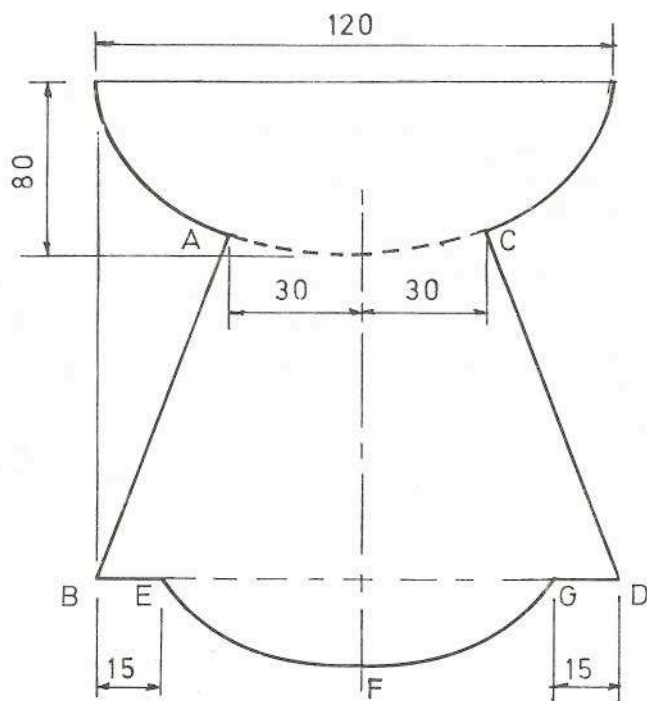


Fig. 9