Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2005

Technical Drawing

Paper 1 – Ordinary Level
(Plane and Solid Geometry)

(200 Marks)

Thursday 16 June
Morning, 9.30 - 12.30

Instructions

(a) *Answer* **four** *questions.*
(b) *All questions carry equal marks.*
(c) *Construction lines must be shown on all solutions.*
(d) *Write the number of the question distinctly on the answer paper.*
(e) *Work on one side of the paper only.*
(f) *All dimensions on the question paper are given in metres or millimetres.*
(g) *First or third angle projection may be used.*

1. An isometric view of a shaped solid is shown in Fig. 1.

(a) Draw an elevation of the solid looking in the direction of the arrow.

(b) Project a plan from the elevation.

(c) Project a new elevation of the solid from the plan, which will show the true shape of the surface A.

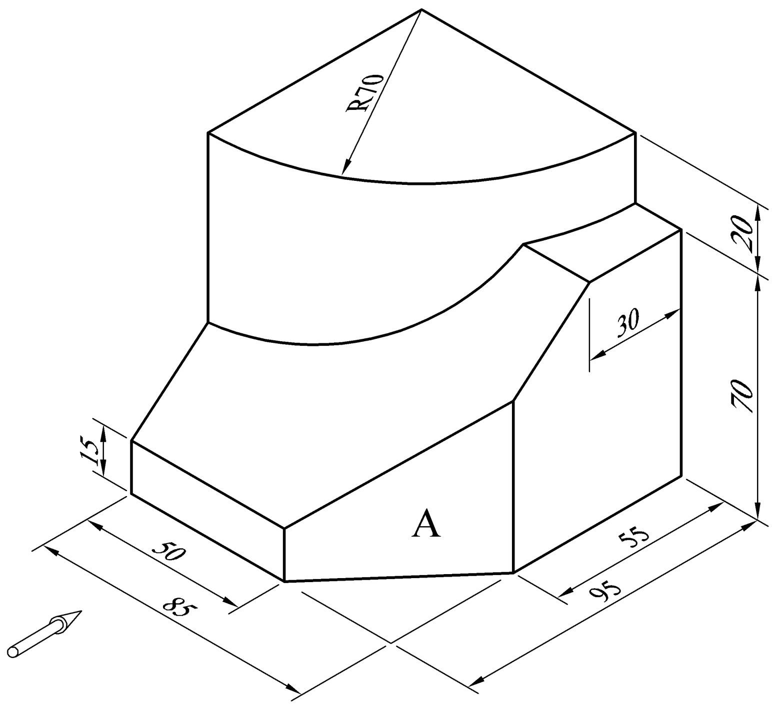

Fig. 1

2. Fig. 2 shows a parallelogram ABCD. The sides of the parallelogram are in a ratio of 3:5.
A triangle ADE is also shown.

The area of the triangle is 0.25 times that of the parallelogram.

(a) Draw the given figure, showing clearly the constructions required to locate the points A, D and E.

(b) Draw a square which shall have the same area as the figure ABCDE.

All constructions must be clearly shown on the sheet.

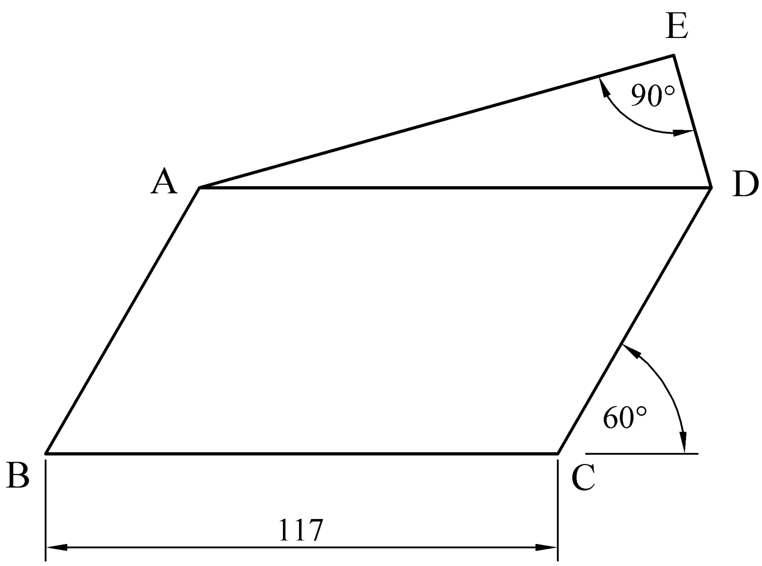

Fig. 2

3. Fig. 3 shows the plan of a cone A, and a cylinder B with a point P on its surface.

The elevation of a sphere C which is in contact with both solids is also shown.

(a) Draw the plan and elevation of the cone and cylinder and show the position of the point P in elevation.

(b) Draw the plan and elevation of the sphere C.

(c) Draw the plan and elevation of another sphere, having a diameter of 50mm, which shall be in contact with the cylinder at point P.

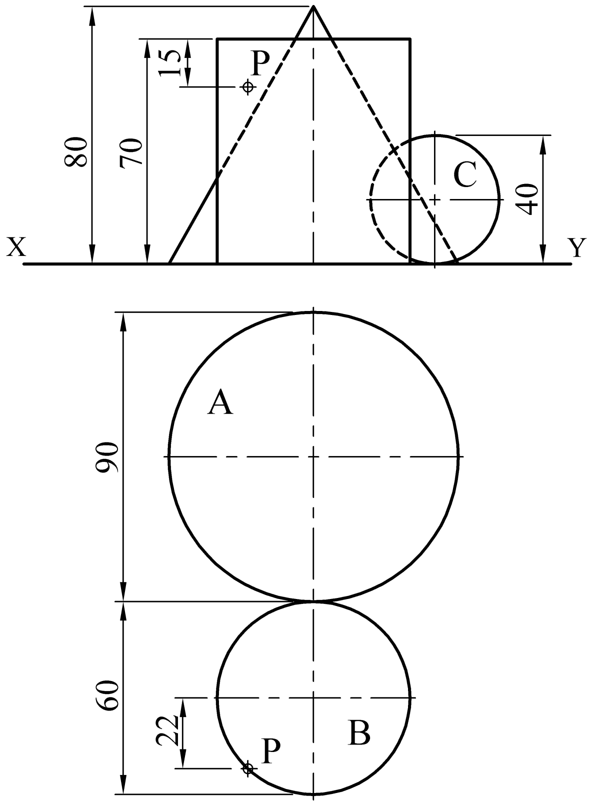

Fig. 3

4. Fig. 4 shows two circles R and S which are in initial contact at point P.

Circle R rolls clockwise along the line AB for one complete revolution. Plot the locus of P for this movement.

Circle S rolls clockwise along the line AC until point P reaches the line AC. Plot the locus of P for this movement.

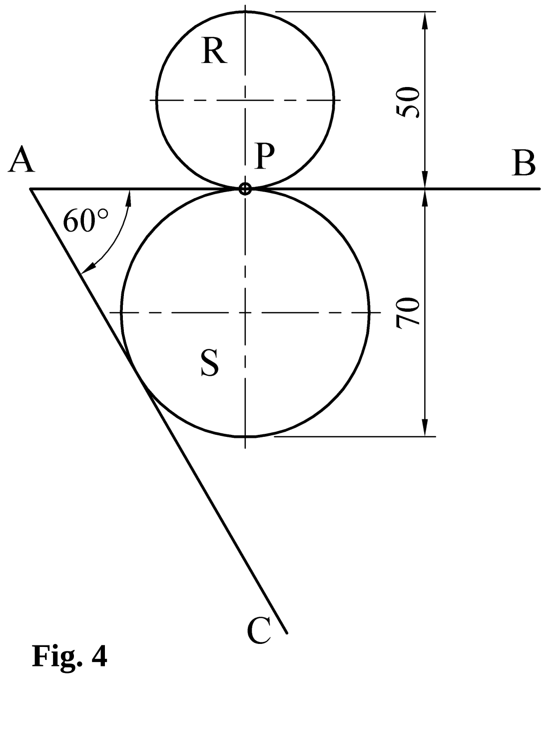

Fig. 4

5. The elevation and plan of a regular hexagonal based pyramid which is to be cut by an oblique plane VTH are shown in Fig. 5.

(a) Draw the plan and elevation of the solid when it is cut by the oblique plane VTH.

(b) Draw the true shape of the cut surface of the solid.

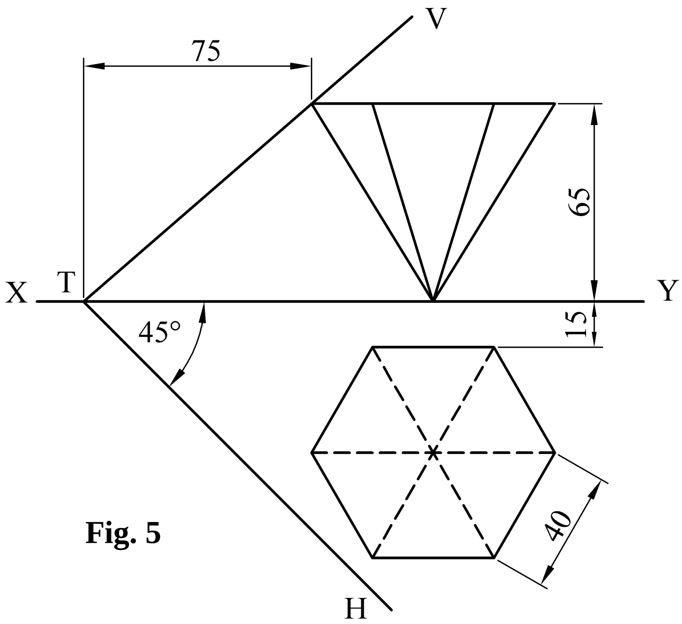

Fig. 5

6. **(a)** Draw a rectangle 140mm x 100mm. Inscribe a parabola in this rectangle, with its axis parallel to the 100mm side.

(b) Fig. 6 shows the directrix DD_1 and axis of an ellipse.
P is a point on the curve.
The eccentricity of the curve is 0.6.

Locate the focus and vertex of the ellipse.
Draw a portion of the curve which passes through the given point P.

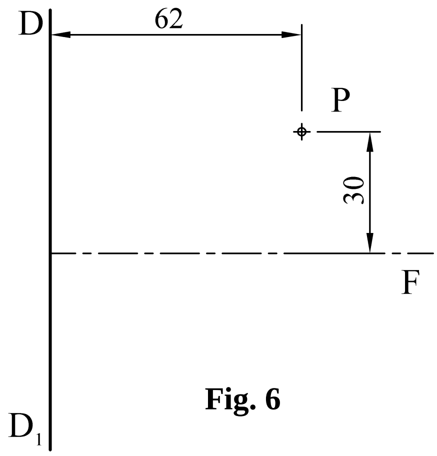

Fig. 6

7. Fig. 7 shows the plan and elevation of an equilateral triangular based prism with a square hole through it as shown.

(a) Draw the given plan and elevation.

(b) Project an end view of the solid.

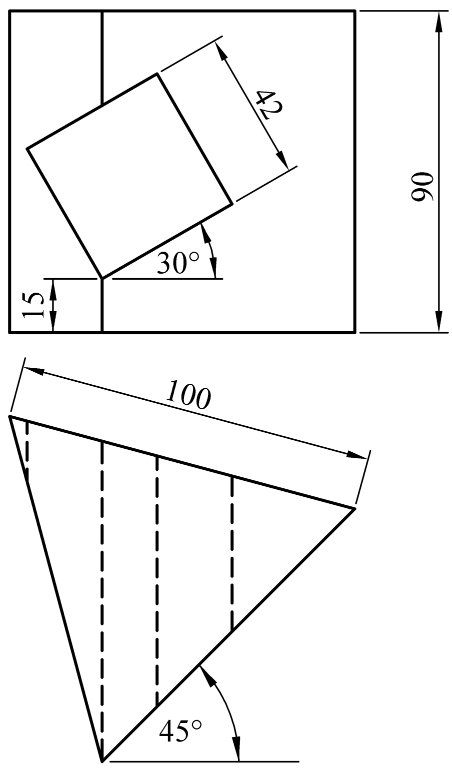

Fig. 7

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