Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2008

Technical Drawing
Paper II(B) – Ordinary Level (Building Applications)
(200 Marks)

Monday 16 June
Afternoon, 2.00 - 5.00

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. Fig. 1 shows the outline plan and elevation of a spectator stand and press box at a sports ground.

A pictorial view of the structure is also shown.

Draw the given plan.

Make a perspective drawing of the building when the position of the spectator is 13m from the corner A, the picture plane is touching the corner A, and the horizon line is 7m above the ground line.
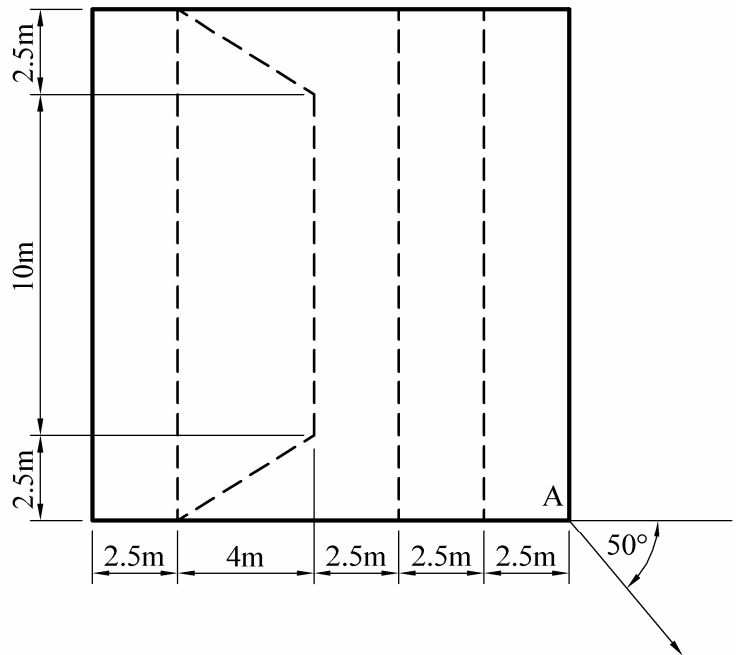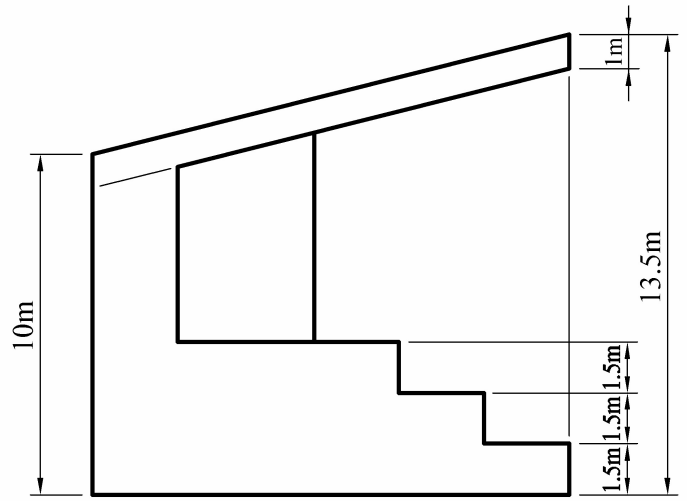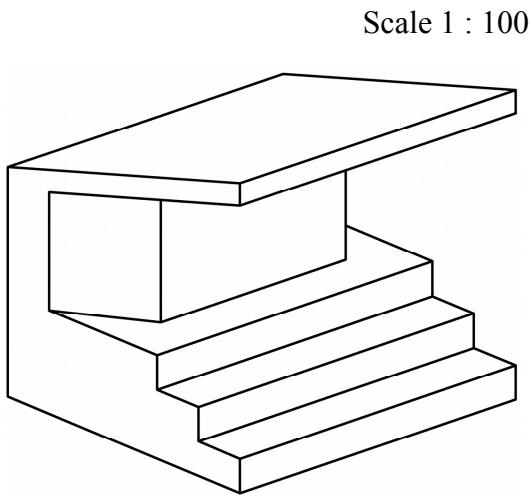
Scale 1 : 100

Fig. 1

2. Fig. 2 shows the outline plan and elevation of a roof.

Surfaces A, B and C have a pitch of 50 degrees.

Surfaces D, E and F have a pitch of 40 degrees.

(a) Draw the given plan and elevation of the roof.

(b) Develop the surface F.

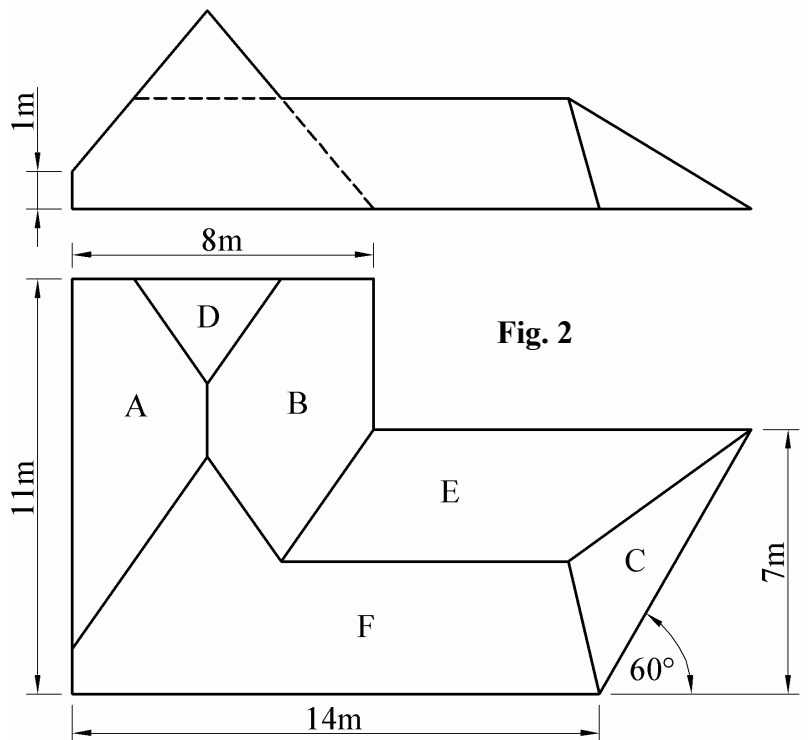**(c)** Find the dihedral angle between the roof surfaces C and E.

Fig. 2

Scale 1 : 100

3. Fig. 3 shows the plan, elevation and pictorial view of a structure based on the proposed U2 tower which is to be built in Dublin's Docklands.

Draw the given plan and elevation of the tower and determine the shadows cast in plan when the direction of light is as shown.

(The triangular doorway, which is shown in the pictorial view, may be ignored for the purposes of your drawing).
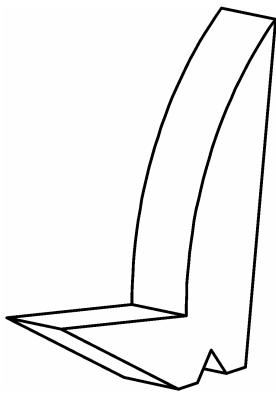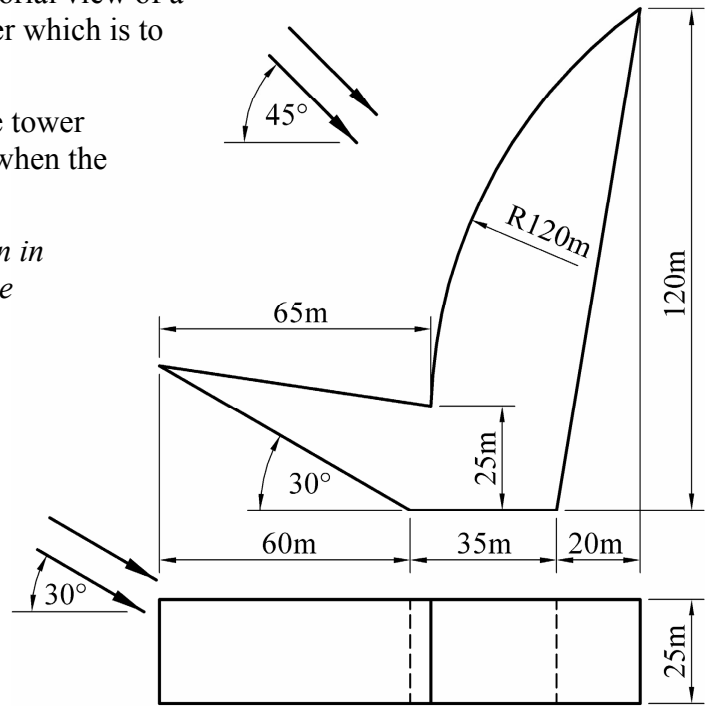
Scale 1 : 1000

Fig. 3

4. Fig. 4 shows the outline plan of two adjoining hyperbolic paraboloid roof surfaces ABCD and CDEF.

The roof perimeter is a regular pentagon in plan.

The corners A and E are at ground level, corners B and F are 4m above ground level, corner C is 8m above ground level and corner D is 12.5m above ground level.

(a) Draw the given plan of the roof and project an elevation.

(b) Project an end elevation of the roof.

(c) Determine the curvature of the roof along a line joining A to F.
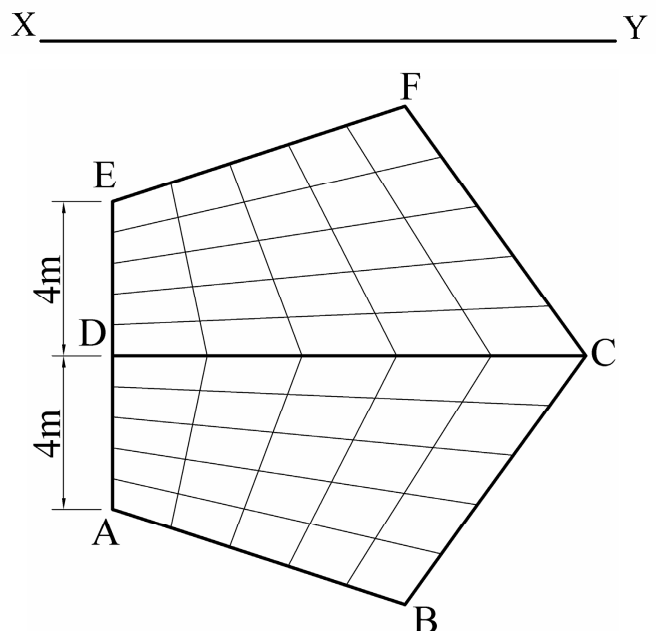
Scale 1 : 100

Fig. 4

5. Fig. 5 shows the plan, elevation and end elevation for the base structure of a tower. Draw the given views and draw an isometric view of the structure.
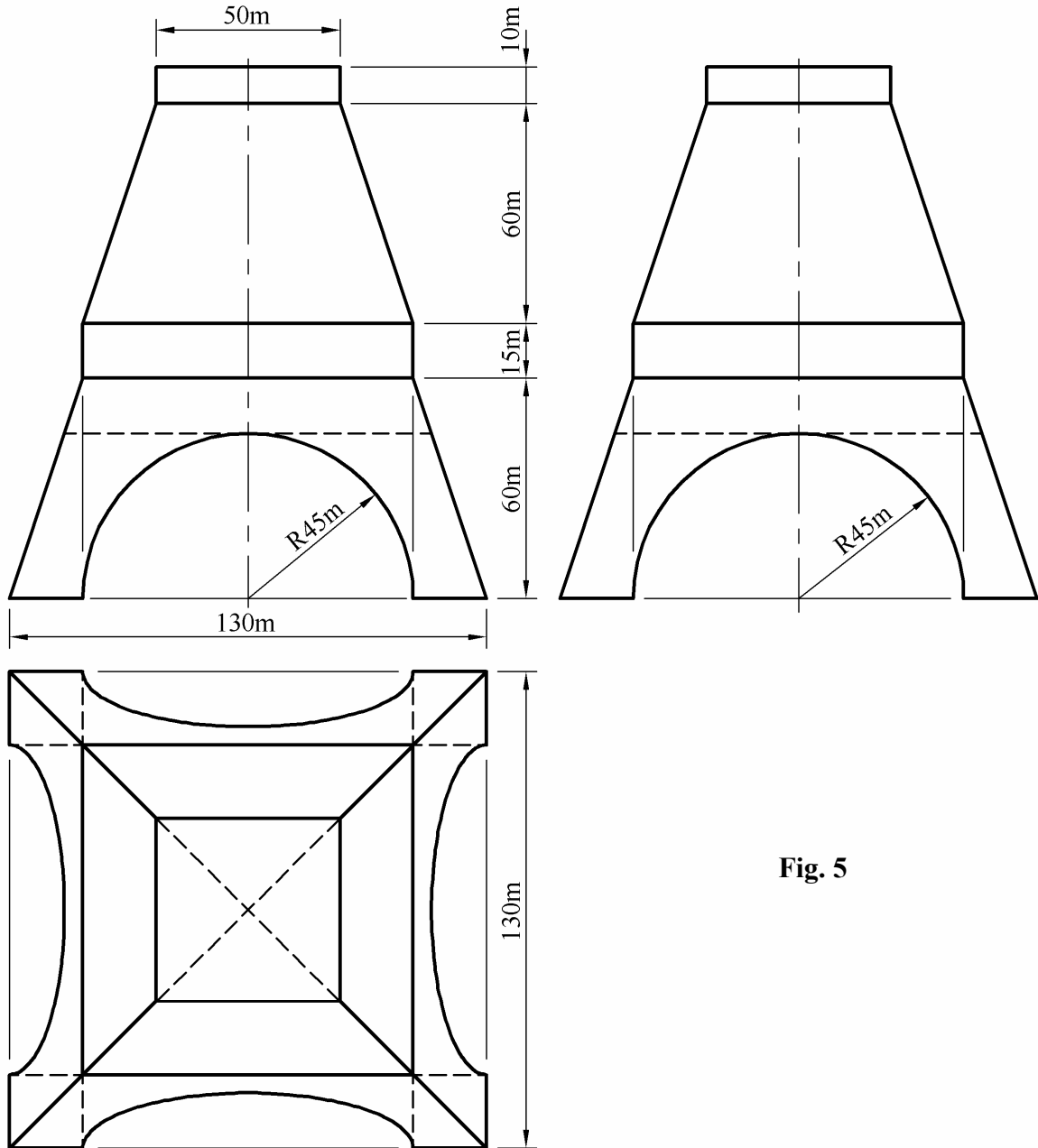
Scale 1 : 1000

Fig. 5

6. Fig. 6 shows the outline plan and elevation of an air traffic control building.

The main body of the structure is in the form of a hyperboloid of revolution.

A pictorial view of the building is also shown.

(a) Draw the given plan and elevation.

(b) Determine the true shape of the section S-S through the structure.

Scale 1 : 200

45°
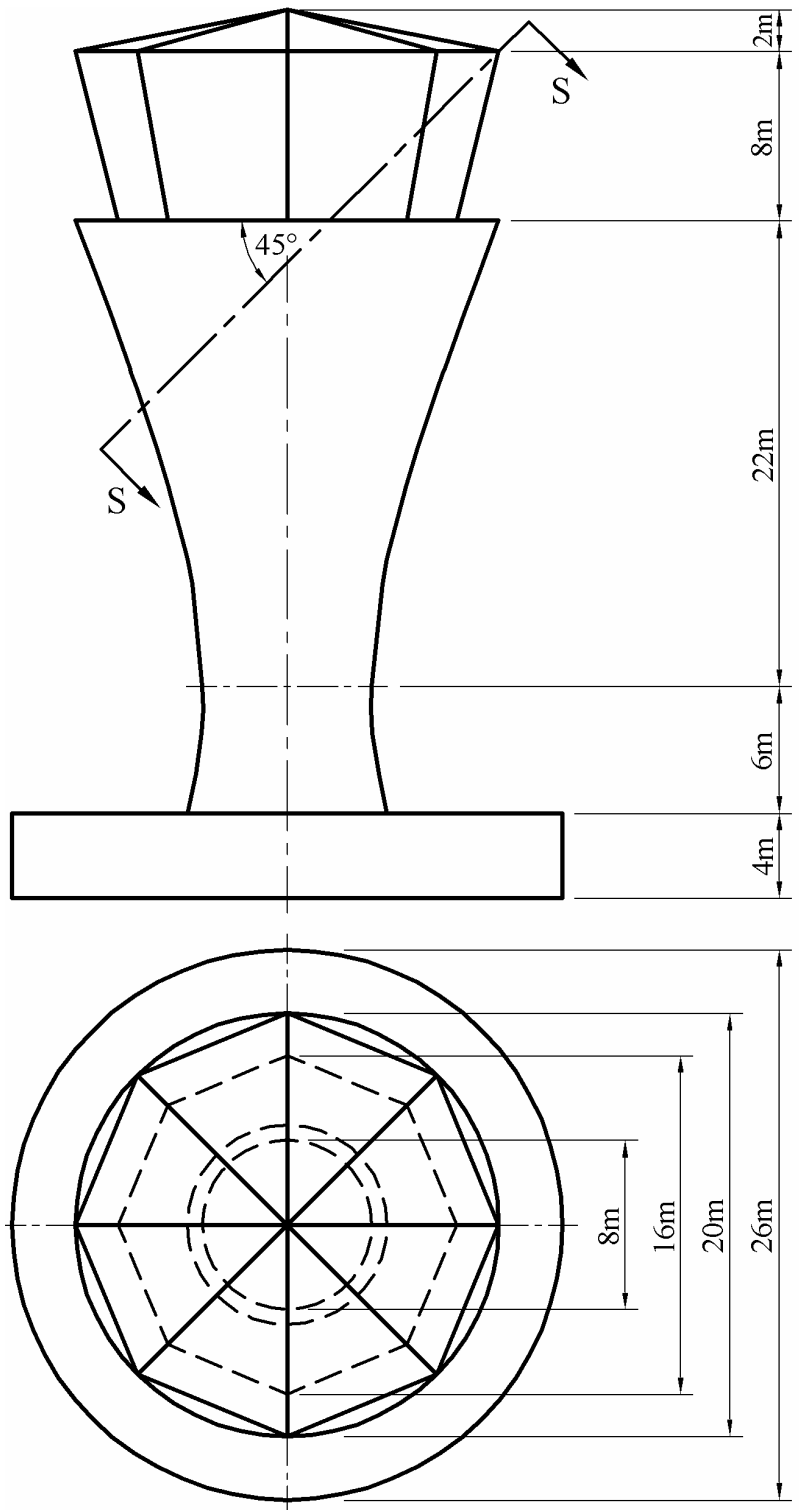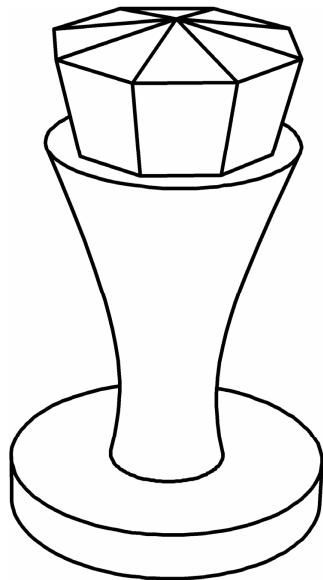
S

S

2m

8m

22m

6m

4m

8m

16m

20m

26m

Fig. 6

7. The accompanying drawing shows ground contours at ten-metre vertical intervals on a map.

(a) On the drawing supplied, draw a vertical section (profile) on the line DE.

(b) A, B and C are outcrop points on the surface of a stratum of ore.
Determine the dip and strike of the stratum.

(c) A wireless broadband transmitter is located on top of a 30m high pylon at point F.
A school, located at G, needs to connect with this transmitter to get broadband internet access.
A wireless receiver unit must be erected at point G. Determine the minimum height for this unit if it is to have a direct line of sight to the transmitter.

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