

AN ROINN OIDEACHAIS

LEAVING CERTIFICATE EXAMINATION, 1984

M.133

TECHNICAL DRAWING - HIGHER LEVEL - PAPER II (B)

BUILDING APPLICATIONS

TUESDAY, 26 JUNE - MORNING 9.30 to 12.30

(200 MARKS)

## INSTRUCTIONS

- Answer four questions.
- All questions carry equal marks.
- Construction lines must be shown on all solutions.
- Write the number of the question, distinctly, on the answer paper.
- First or third angle projection may be used.
- All measurements are given in metres or millimetres.

1. Fig 1 show the plan of three lean-to roof surfaces. All the surfaces have a pitch of  $30^\circ$ .

- Draw the plan and elevation of the roof.
- Develop the true shape of roof surfaces A, B and C.
- Find the dihedral angle between surfaces B and C.
- Find the true angle between the roof surface A and the vertical wall at X.

Scale 1 : 100

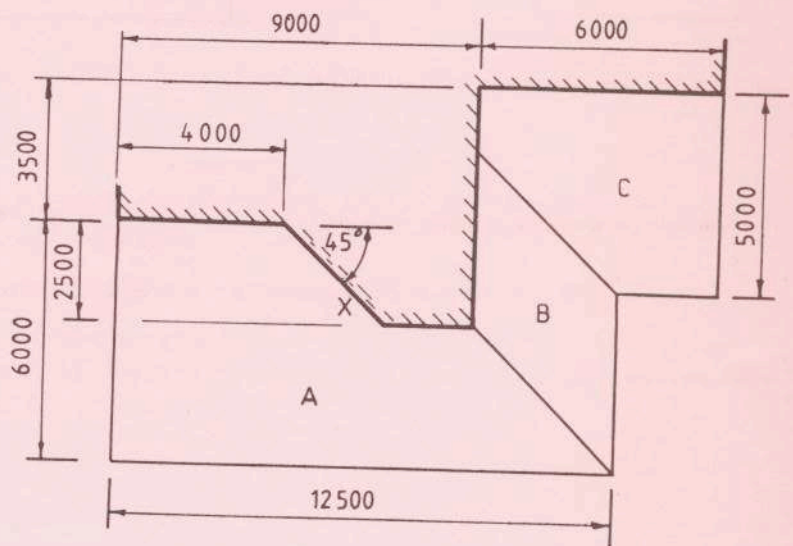


Fig. 1

2. Fig. 2 shows the outline plan of two adjoining hyperbolic paraboloid roof shells. The corners A, C and E are at ground level and the corners B, D and F are elevated 10 m above ground level. Using eleven elements in each direction, draw the plan and project an elevation looking in the direction of the arrow. Also, show the curvature of the roof along the diagonal CE.

Scale 1 : 200

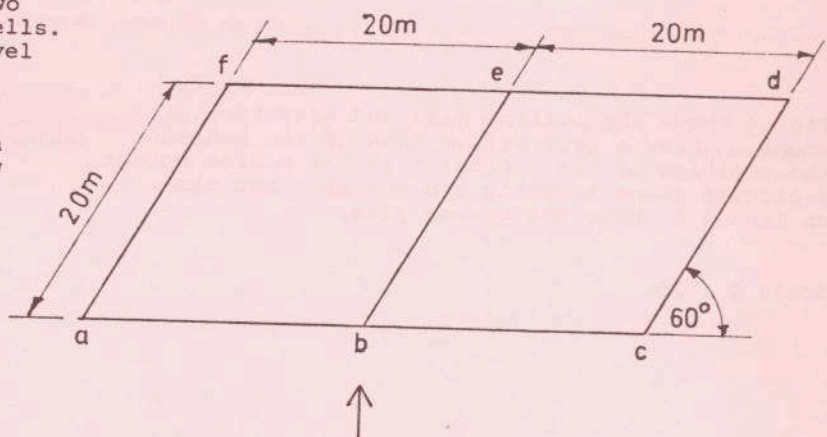


Fig. 2

OVER→

3. The outline plan and elevation of a sports hall are shown in Fig. 3. In elevation the curve BCD is hyperbolic and the inner curve is parallel to it. The focus of the hyperbola is 5 m from the vertex C and its transverse axis is 12 m long. AB and DE are tangents to the hyperbola at B and D, respectively. In plan the curves BCD and FGH are parabolas.

Draw the given views.

Scale 1 : 500

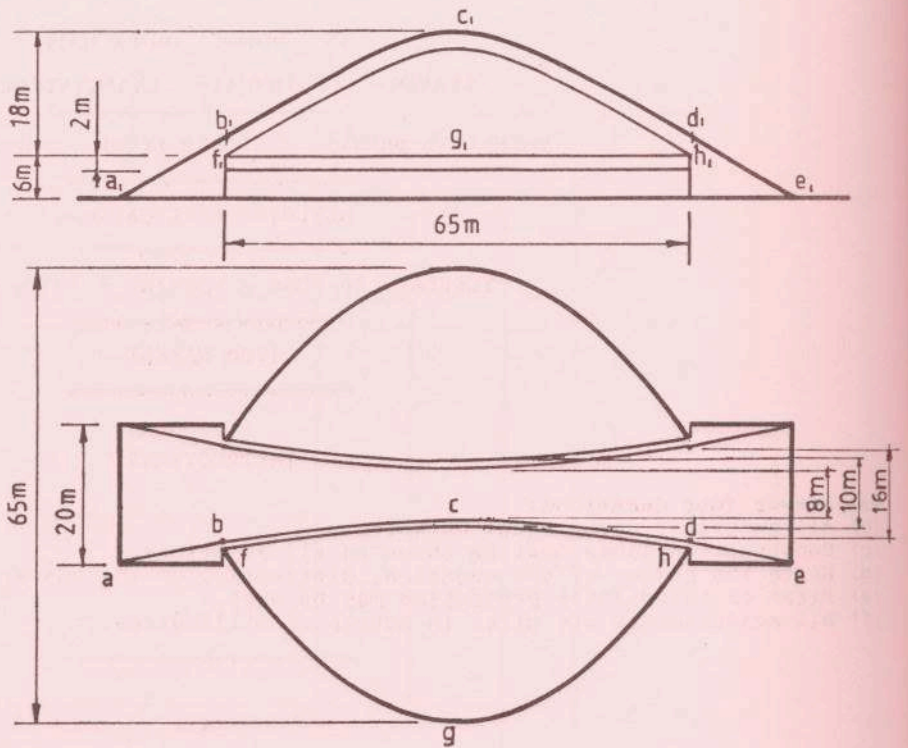


Fig. 3

4. Fig. 4 shows the outline plan and elevation of a monument. Draw a perspective view of the monument when the position of the spectator is 1.8 m from corner A, the picture plane touching the corner A and the horizon line 1 m above the ground line.

Scale 1 : 20

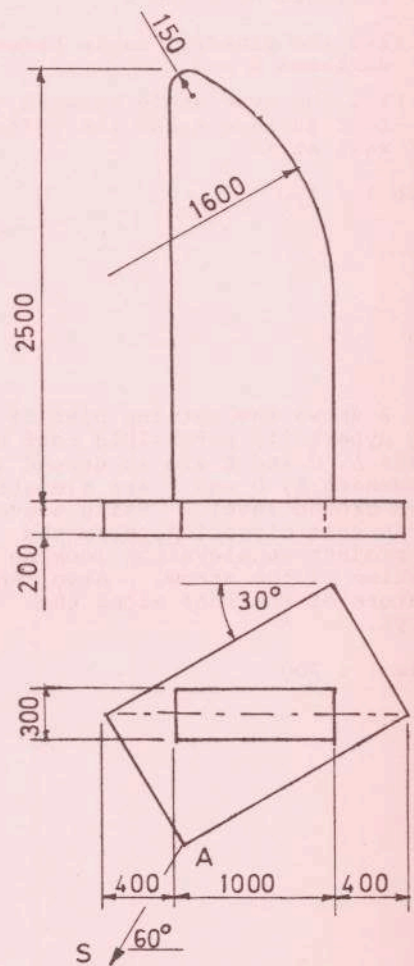


Fig. 4



5. The plan and elevation of a square-based parapet lamp standard is shown in Fig. 5. Draw the given views and determine the outline of the cast shadows in plan when the direction of the light is as shown.

Scale 1 : 10

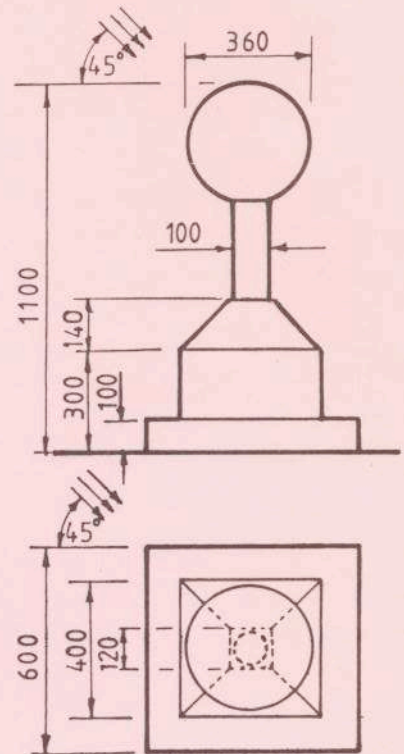


Fig. 5

6. A, B and C are three points on a stratum of ore having the following elevations:

$$A = 70 \text{ m}, \quad B = 100 \text{ m}, \quad C = 50 \text{ m}.$$

On the map B is located 100 m north of A and C is located 80 m west of A.

- Determine the dip and strike of the stratum.
- A borehole at A reveals a vertical depth of stratum of 20 m. Find the actual thickness of the stratum.

Scale 1 : 1000

7. The accompanying drawing shows ground contours at two-metre vertical intervals. AB is the line of a proposed roadway having the following specification:-

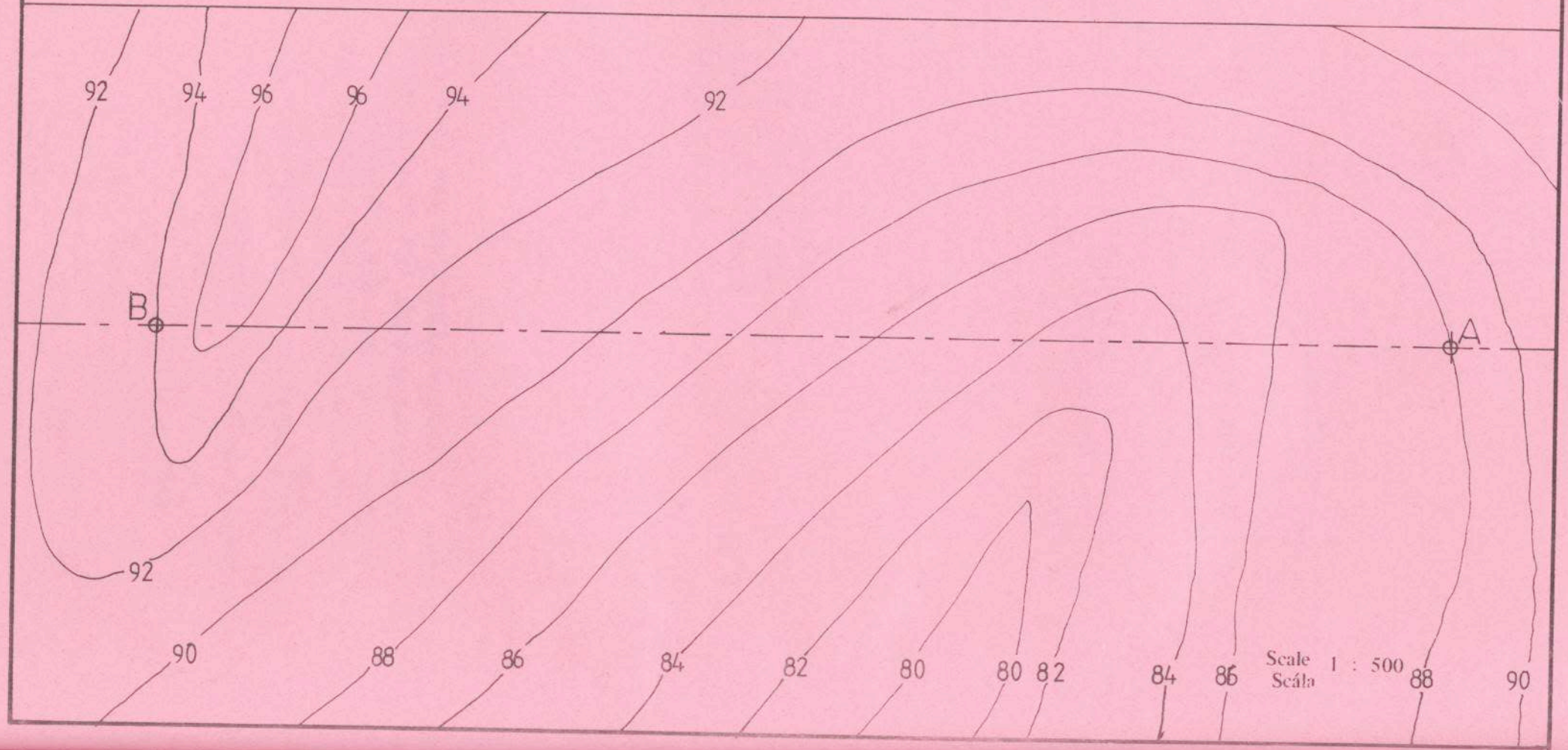
- formation width 10 m;
- formation level at A 88 m;
- gradient from A to B 1 in 20 rising;
- side slopes 1 in 2;

- On the drawing supplied, draw a vertical section (profile) on line A - B.
- Show on the supplied drawing the outline of the earthworks necessary to accommodate the roadway.



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EXAM NO   
SCRÚDUIMHIR



Scale 1 : 500  
Scála 1 : 500