

**TECHNICAL DRAWING - HIGHER LEVEL  
PAPER II(B) - BUILDING APPLICATIONS**

TUESDAY, 23 JUNE - AFTERNOON 2.00 P.M. TO 5.00 P.M.

(200 Marks)

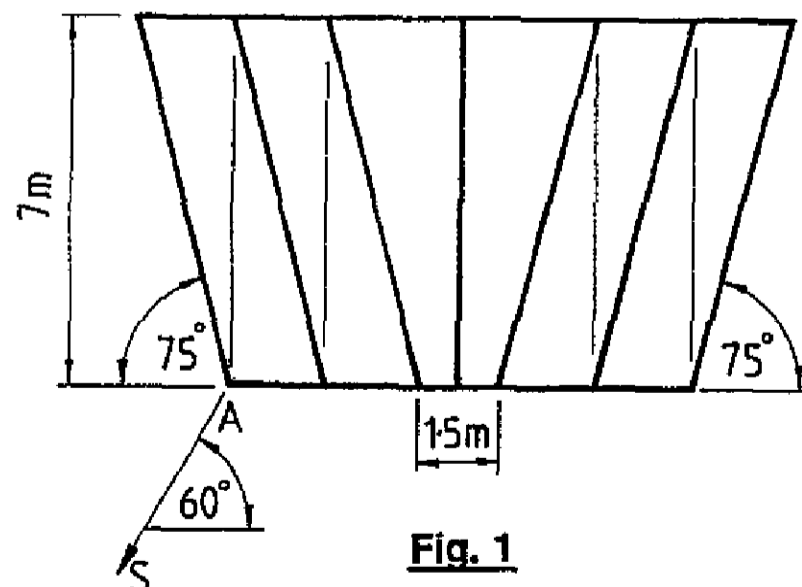
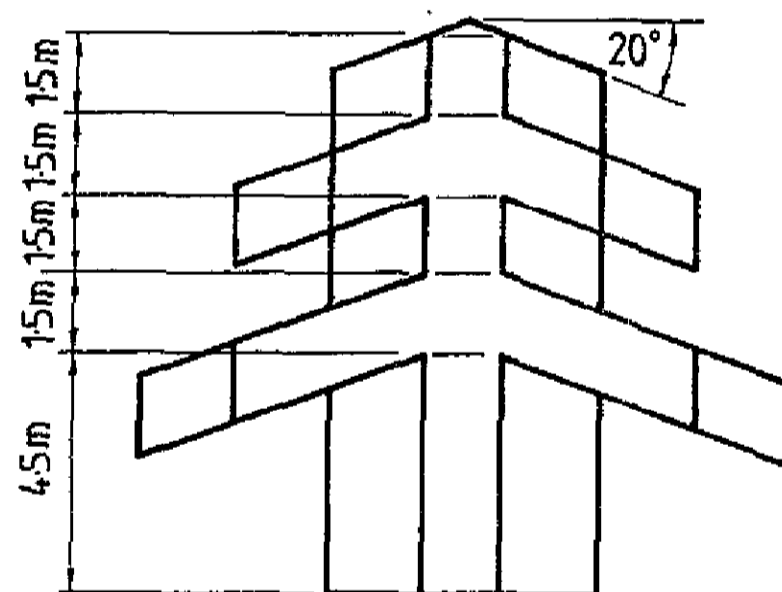
**INSTRUCTIONS**

- (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) First or third angle projection may be used.
- (f) All measurements are given in metres.

1. Draw a perspective view of the structure shown in Fig. 1. The picture plane passes through the position A, the spectator S is 7 m from the position A and the horizon line is 9 m above the ground line.

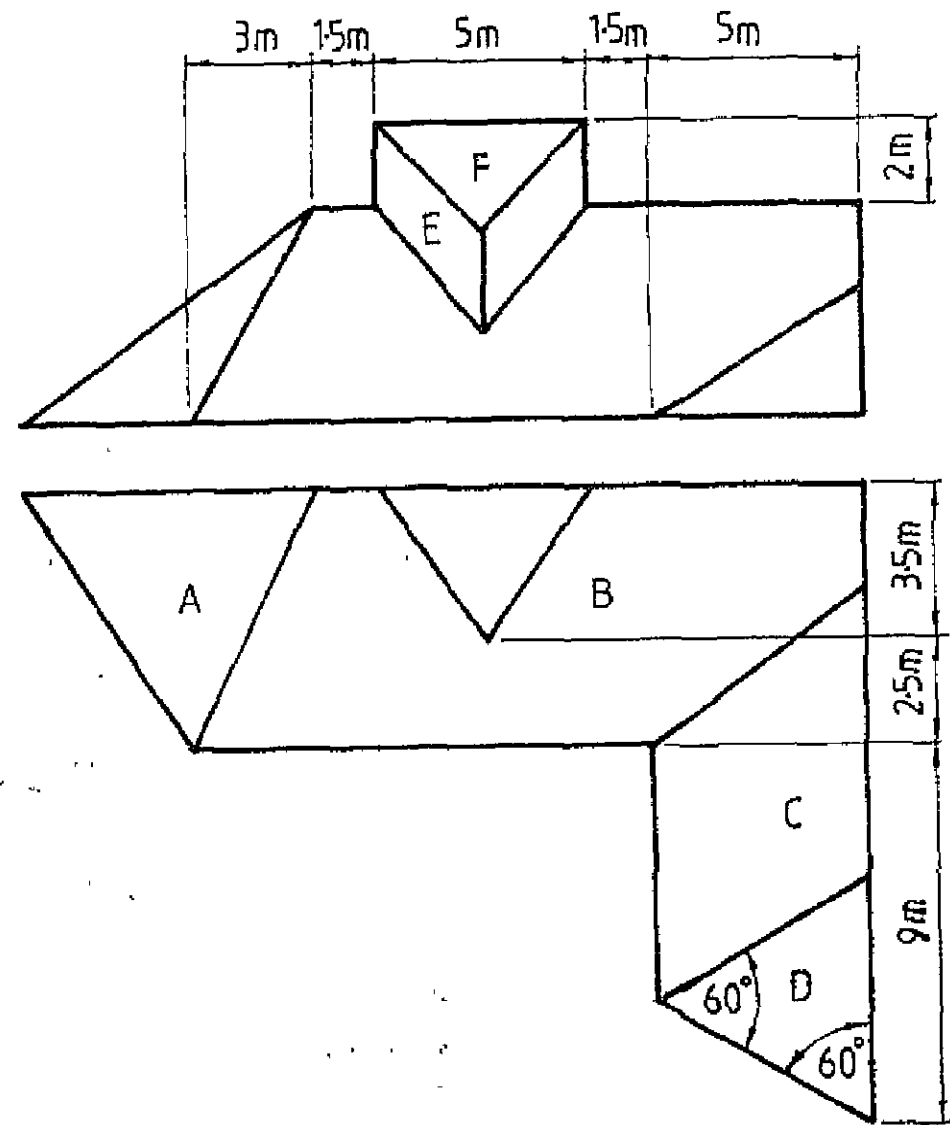
Use auxiliary vanishing points where appropriate.

Scale 1 : 100



**Fig. 1**

2. Fig. 2 shows the outline plan and elevation of roof surfaces and a dormer window. The surface B has a pitch of  $40^\circ$ . The true shape of the dormer surface F is an equilateral triangle. The dihedral angle between the surfaces A and B is  $145^\circ$  and the dihedral angle between the surfaces C and D is  $150^\circ$ . Draw the given plan and elevation and find the dihedral angle between the surfaces B and E.



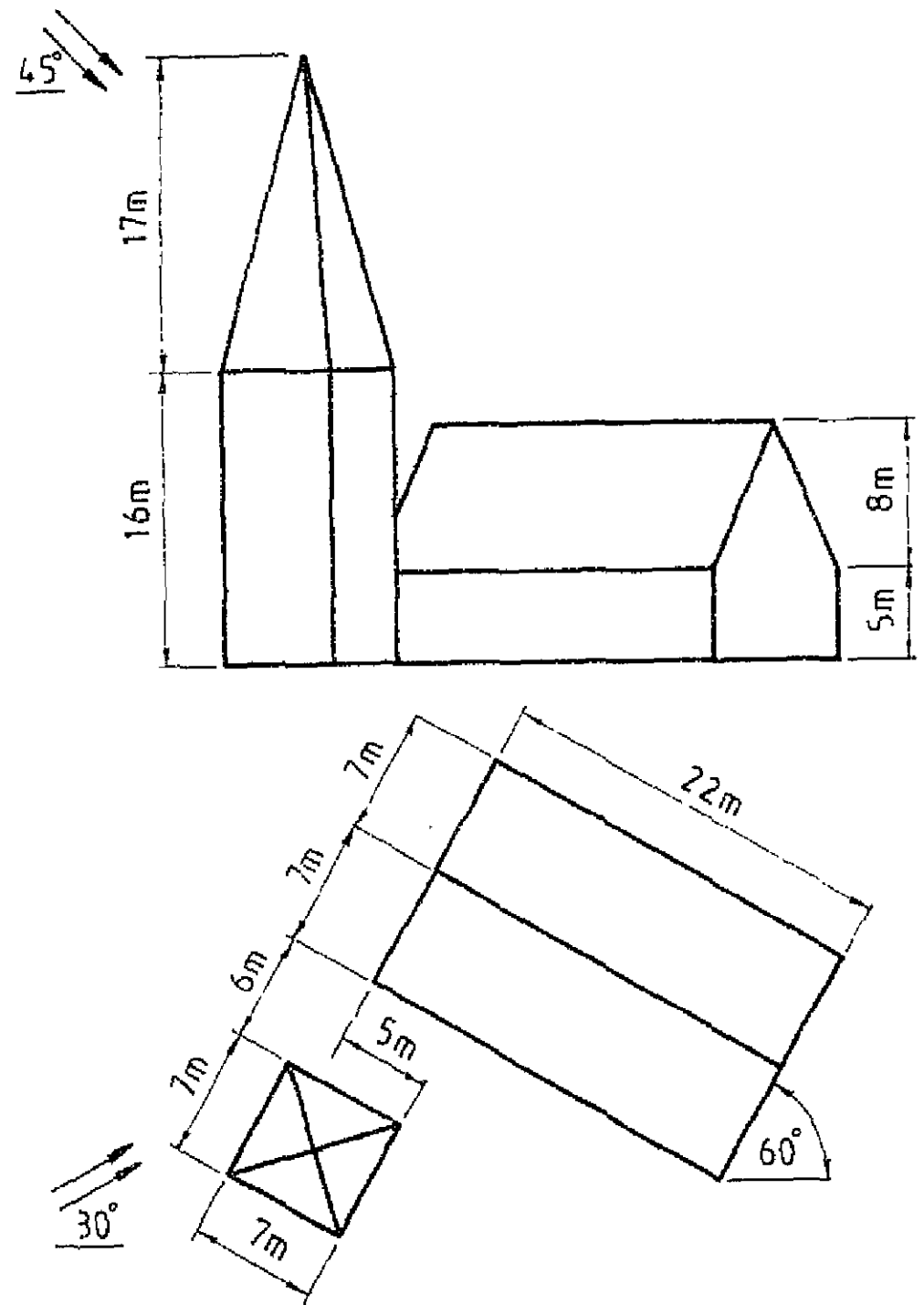
Scale 1 : 100

**Fig. 2**

3. Fig. 3 shows the outline plan and elevation of two adjacent buildings.

Draw the given views and determine the shadows and shade in plan and elevation when the direction of the light is as shown in the figure.

Scale 1 : 200

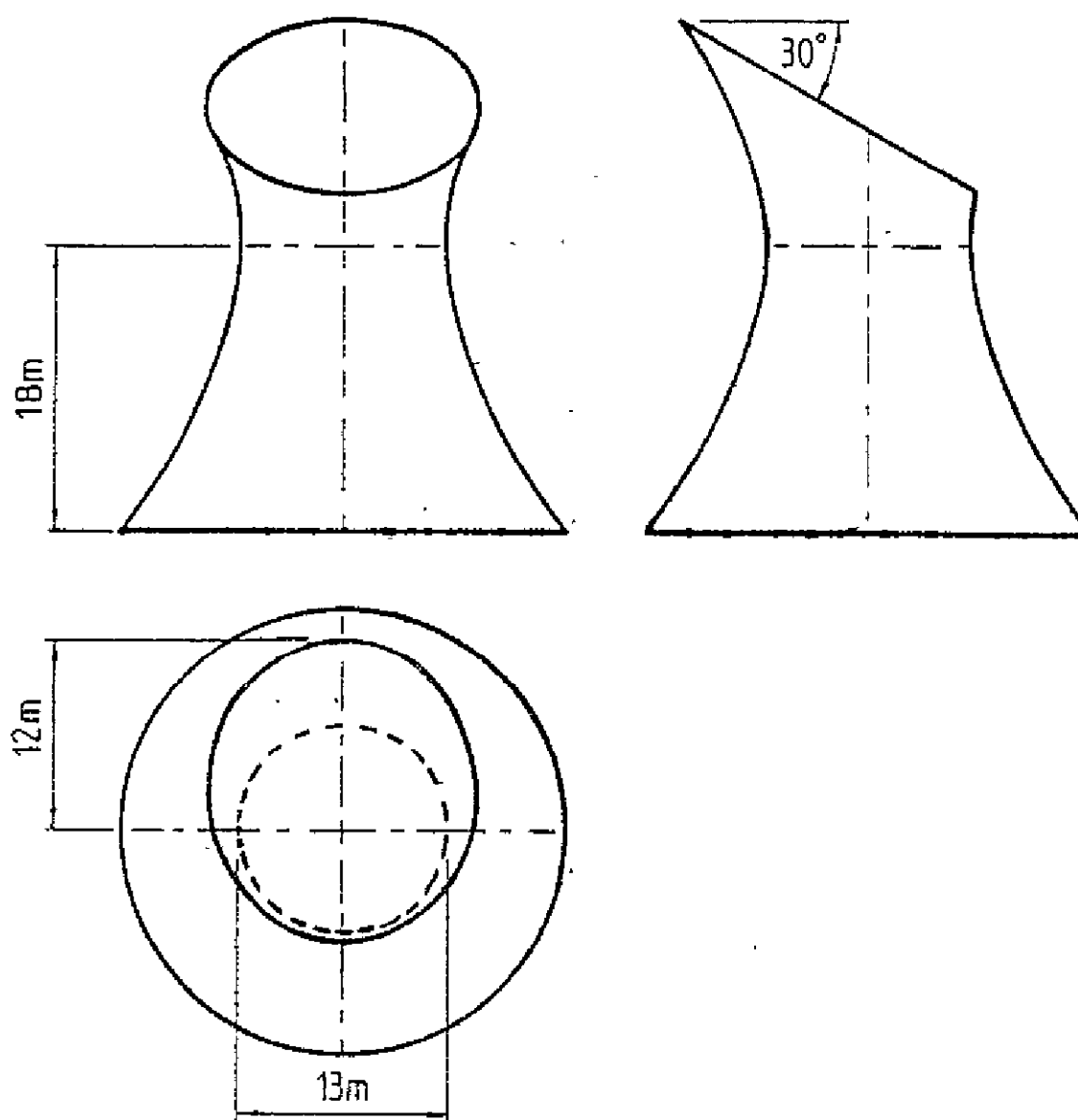


**Fig. 3**

4. Fig. 4 shows the plan, elevation and end elevation of a building in the form of portion of a hyperboloid of revolution which is shaped at the top as shown. The true lengths of all straight line elements of the complete hyperboloid of revolution are 22 m.

Draw the plan, elevation and end elevation.

Scale 1 : 200



**Fig. 4**

5. On a contour map A and B are two points whose altitudes are 125 m and 90 m respectively. On the map B is located 70 m south of A. A skew bore-hole at A is drilled in a south-easterly direction in plan and has an actual inclination of  $50^\circ$  to the horizontal plane. It reveals the top and bottom surfaces of a stratum at altitudes of 80 m and 15 m, respectively.

A skew bore-hole at B is drilled in a southerly direction in plan and has an actual inclination of  $70^\circ$  to the horizontal plane. It reveals the top and bottom surfaces of the stratum at altitudes of 60 m and 30 m, respectively.

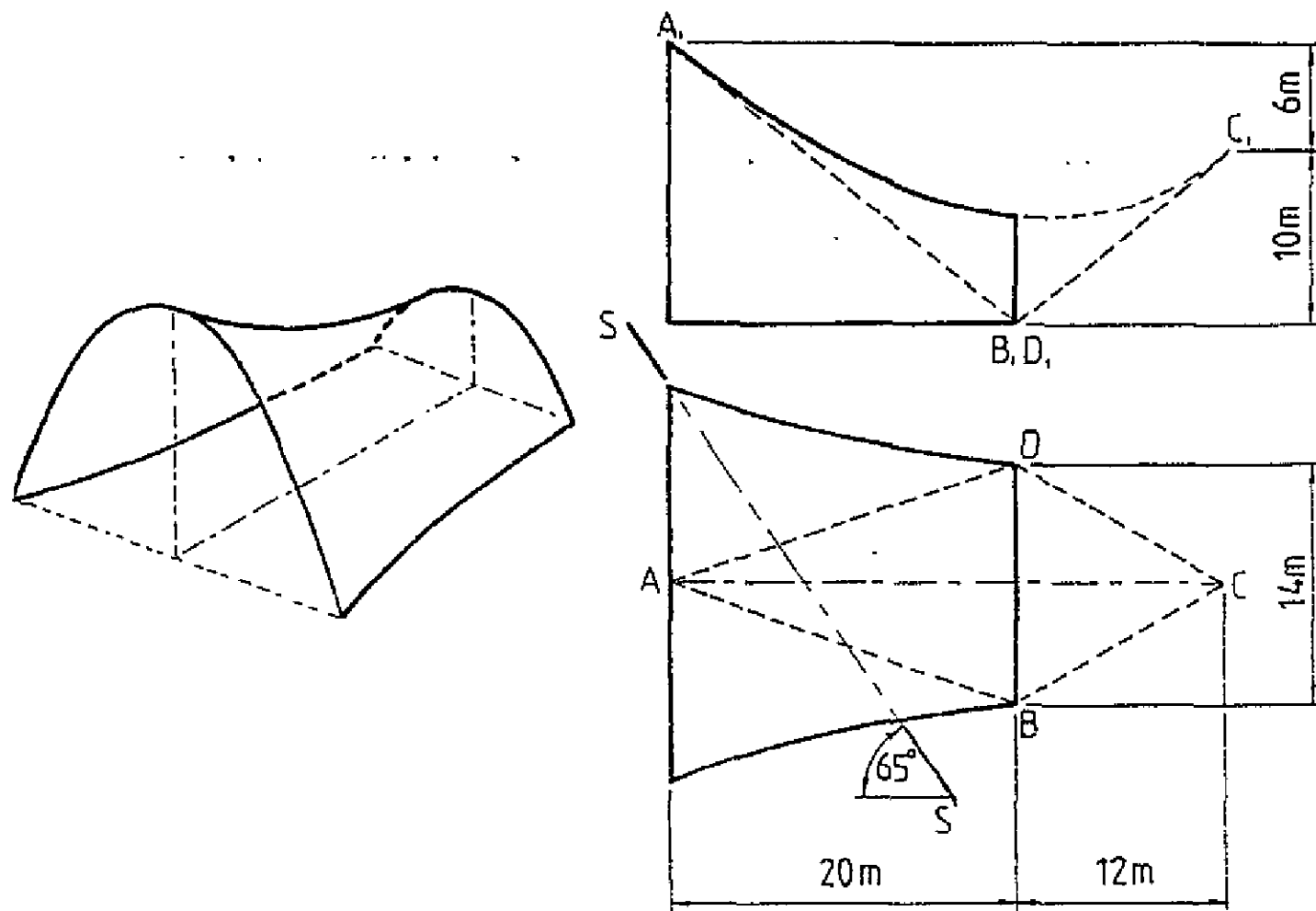
- (a) Determine the dip, strike and thickness of the stratum.
- (b) Another skew bore-hole at B is drilled in a northerly direction in plan and has a true inclination of  $50^\circ$  to the bore-hole already drilled at B. Determine the length of this bore-hole as it passes through the stratum.

Scale 1 : 1000

6. In Fig. 5 is shown a pictorial sketch of a shell structure in the form of a hyperbolic paraboloid. Also shown are the plan and elevation of the structure. The surface is generated by extending a portion of the hyperbolic paraboloid surface ABCD to ground level.

- Draw the plan and elevation of the structure.
- Determine the true shape of the section S-S through the structure.
- Determine the traces of the plane director for the elements BC and AD, having its horizontal trace passing through D.

Scale 1 : 200



**Fig. 5**

7. The accompanying drawing shows ground contours at five-metre vertical intervals. ABC is the line of a proposed roadway. The roadway has the following specification:-
- formation width is 15 m;
  - formation level at B is 50 m;
  - A to B is level, gradient B to C is 1 in 10 rising;
  - side slopes for cuttings 1 in 1.5;
  - side slopes for embankments 1 in 2.

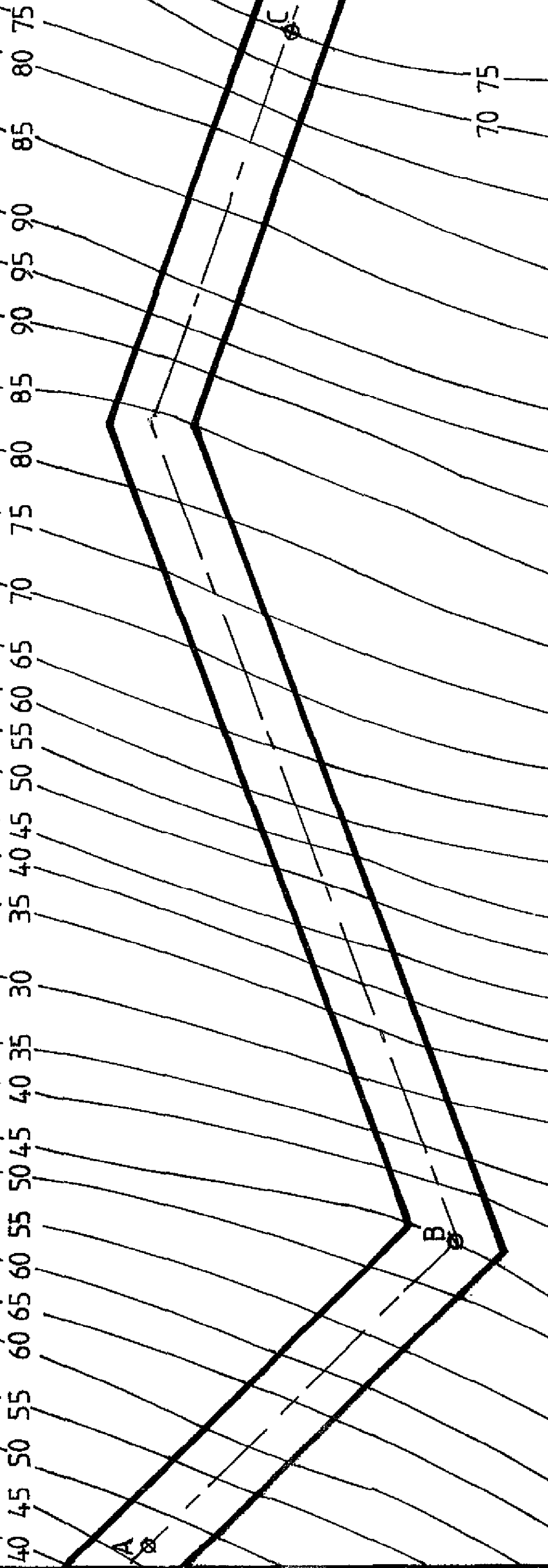
On the drawing supplied, show the earthworks necessary to accommodate the roadway.

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA  
SCRÚDÚ ARDTEISTIMÉIREACHTA, 1998  
LEAVING CERTIFICATE EXAMINATION, 1998

Scrútuimhir

Examination Number

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