



L.84/85



Pre-Leaving Certificate Examination, 2012

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## Design & Communication Graphics

### Marking Scheme

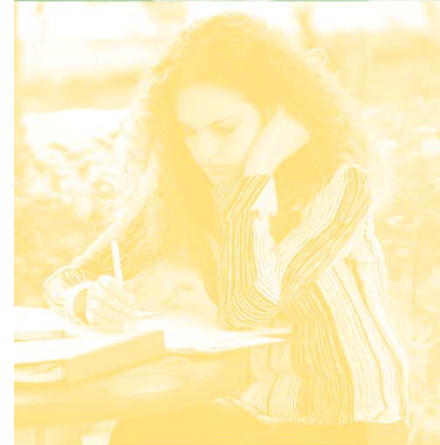
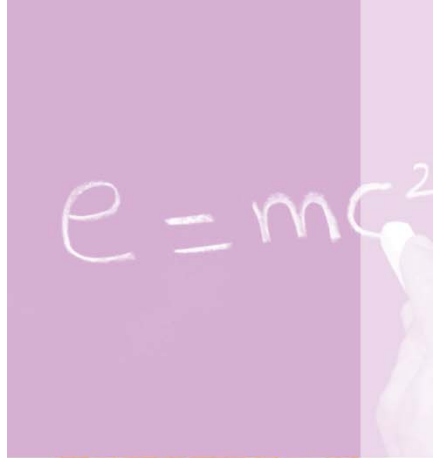
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**Ordinary** Pg. 3

**Higher** Pg. 12

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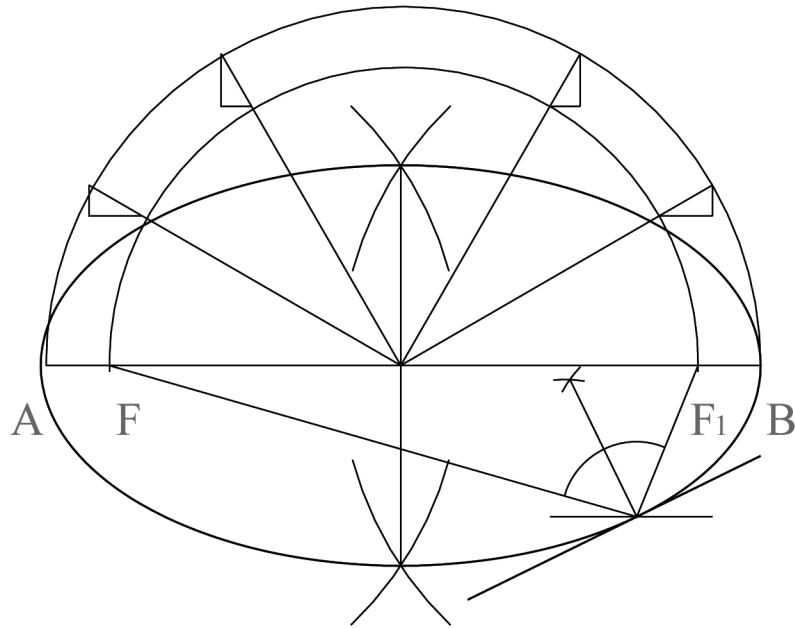


## SECTION A - Core - Answer Any Three of the questions on this A3 sheet

**A-1.** The 3D graphic below shows a garden light.  
The top surface of the light is elliptical as shown.

The drawing on the right shows the major axis of the ellipse AB and its focal points F and  $F_1$ .

- (a) Locate the minor axis and construct the complete ellipse.
- (b) Locate a point P on the curve which is 30 mm from the major axis and construct a tangent to the curve through this point P.



### MARKING SCHEME

Total (20)

Minor Axis (5m)  
Ellipse construction (5m)  
Curve (5m)  
Point P (2m)  
Tangent (3m)

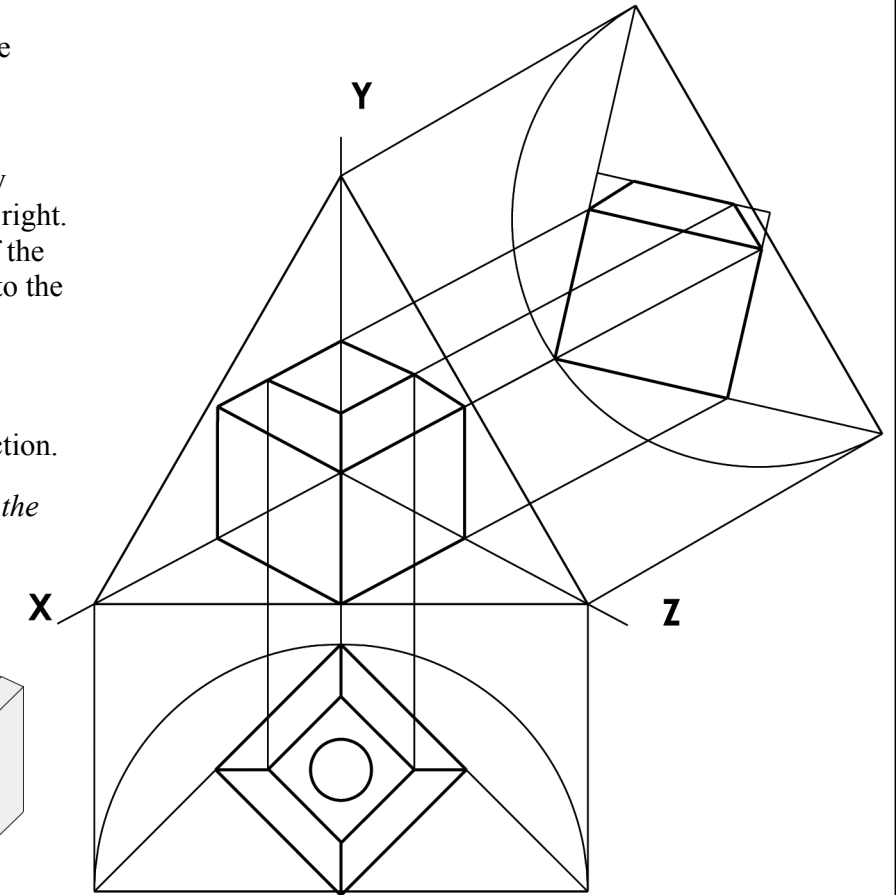


**A-3.** The 3D graphic below shows a candle holder. It is based on a cube which has a chamfered top as shown.

A set of isometric axes and a partially completed drawing are shown on the right. The elevation and incomplete plan of the holder have been positioned relative to the axes as shown.

- (a) Complete the plan of the holder.
- (b) Complete the axonometric projection.

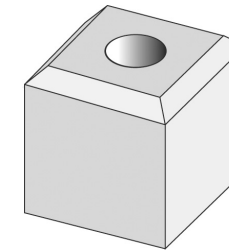
**Note:** The projections of the hole for the candle are not required.



### MARKING SCHEME

Total (20)

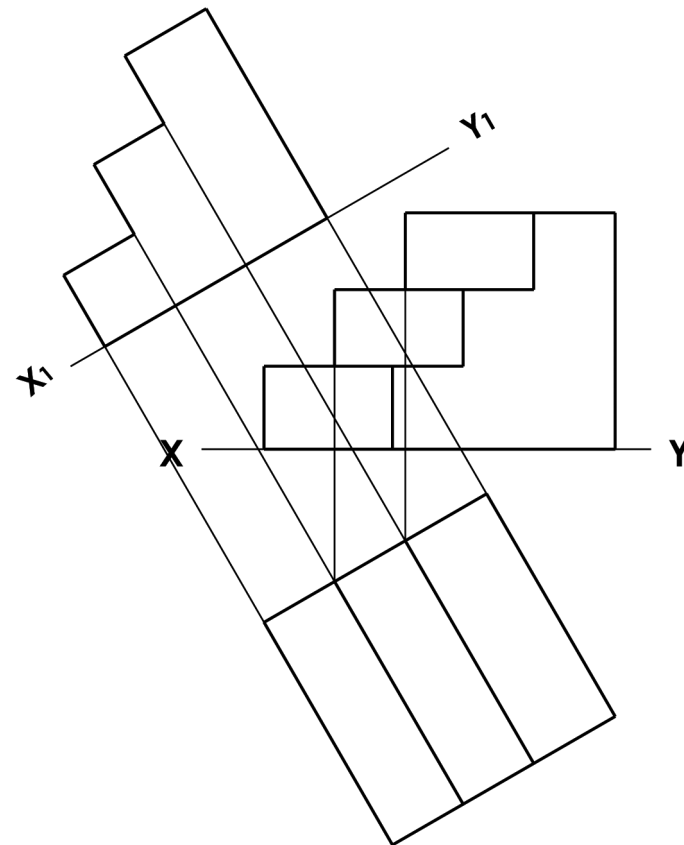
Projection into plan (4m)  
Establish outline (4m)  
Complete plan (4m)  
Project to isometric (4m)  
Completion (4m)



**A-2.** The 3D graphic below shows a set of concrete steps.

The plan and incomplete elevation of the steps are shown on the right.

- (a) Complete the elevation.
- (b) Draw an auxiliary view of the steps on the given  $X_1Y_1$ .



### MARKING SCHEME

Total (20)

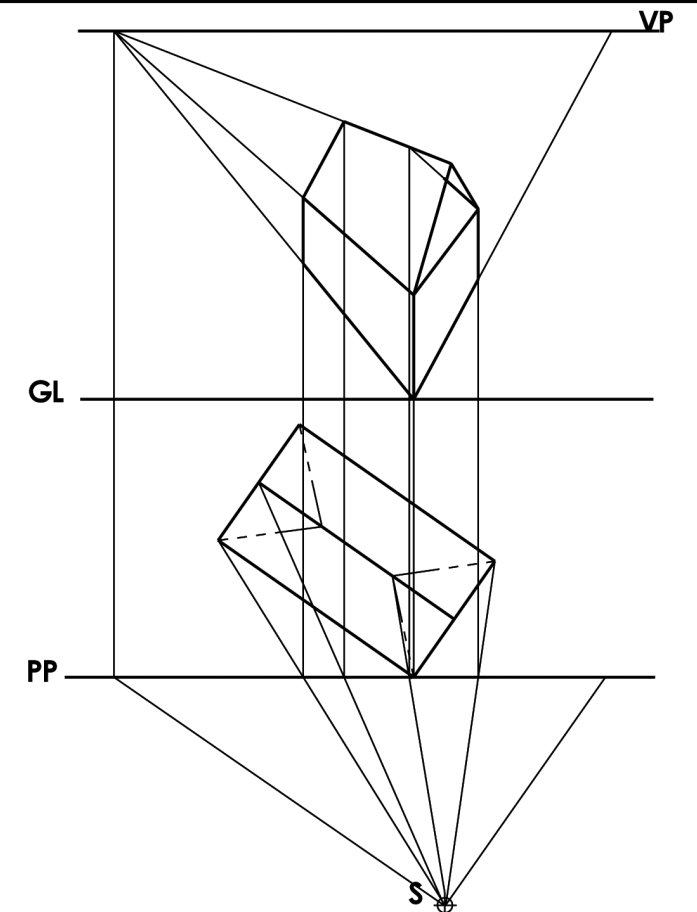
Project to elevation (4m)  
Complete elevation (4m)  
Project to auxiliary (4m)  
Establish heights (4m)  
Complete auxiliary (4m)



**A-4.** The 3D graphic below shows a fast food carrier box.

The plan and partially completed perspective drawing of the fast food carrier box are shown on the right.

Complete the perspective drawing.



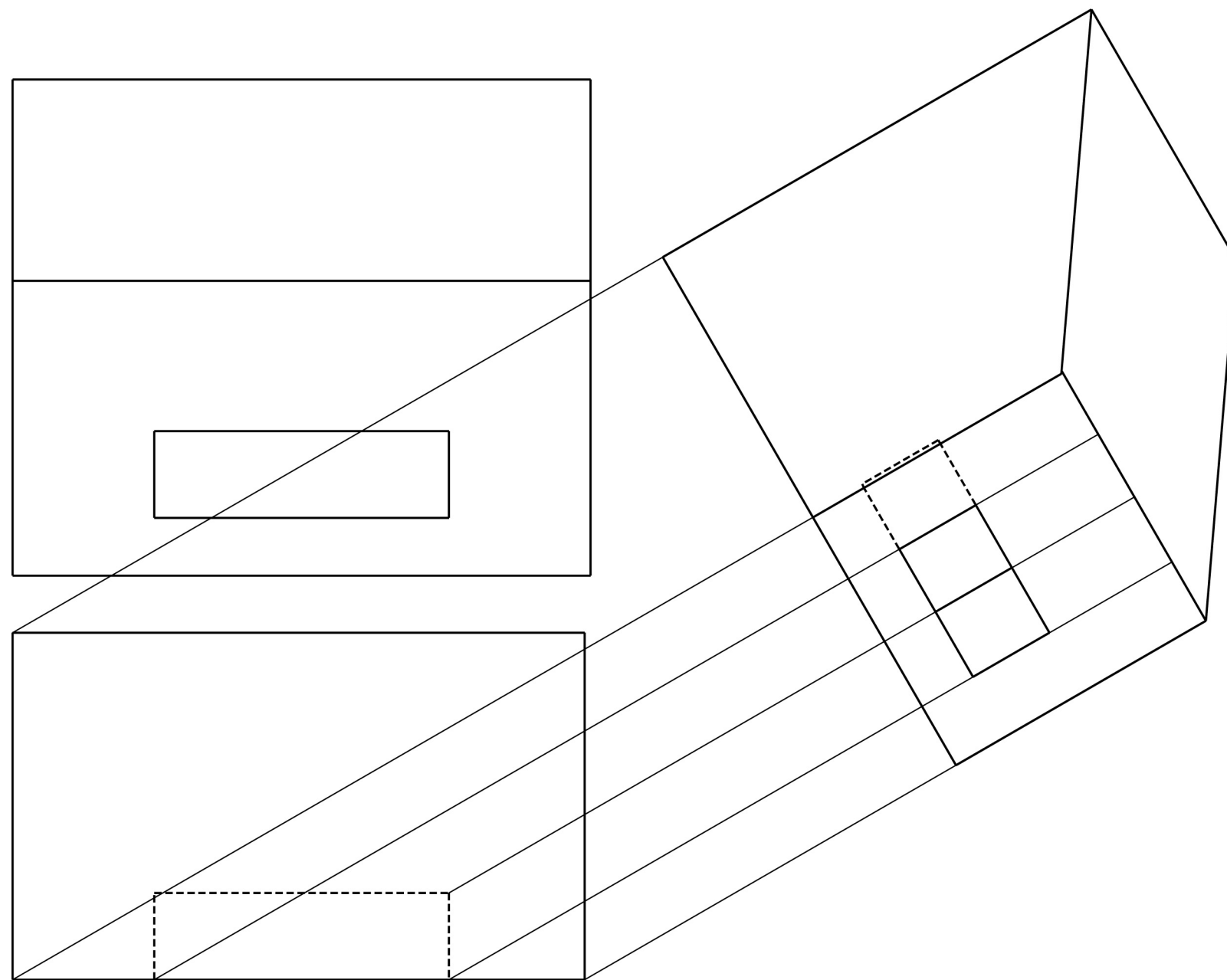
### MARKING SCHEME

Total (20)

Find second VP (3m)  
Sight lines (3m)  
Projectors (3m)  
Front of box (3m)  
Side of box (2m)  
Sloping top (2m)  
Internal detail (2m)  
Completion (2m)



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MARKING SCHEME

Total (45)

(a) Elevation  
Outline (4m)  
Completion (6m)

Plan  
Outline (4m)  
Completion (6m)

(b) Line of Vision / XY Line (6m)  
Projections (4m)  
Heights (4m)  
Completion (7m)

Presentation (4m)



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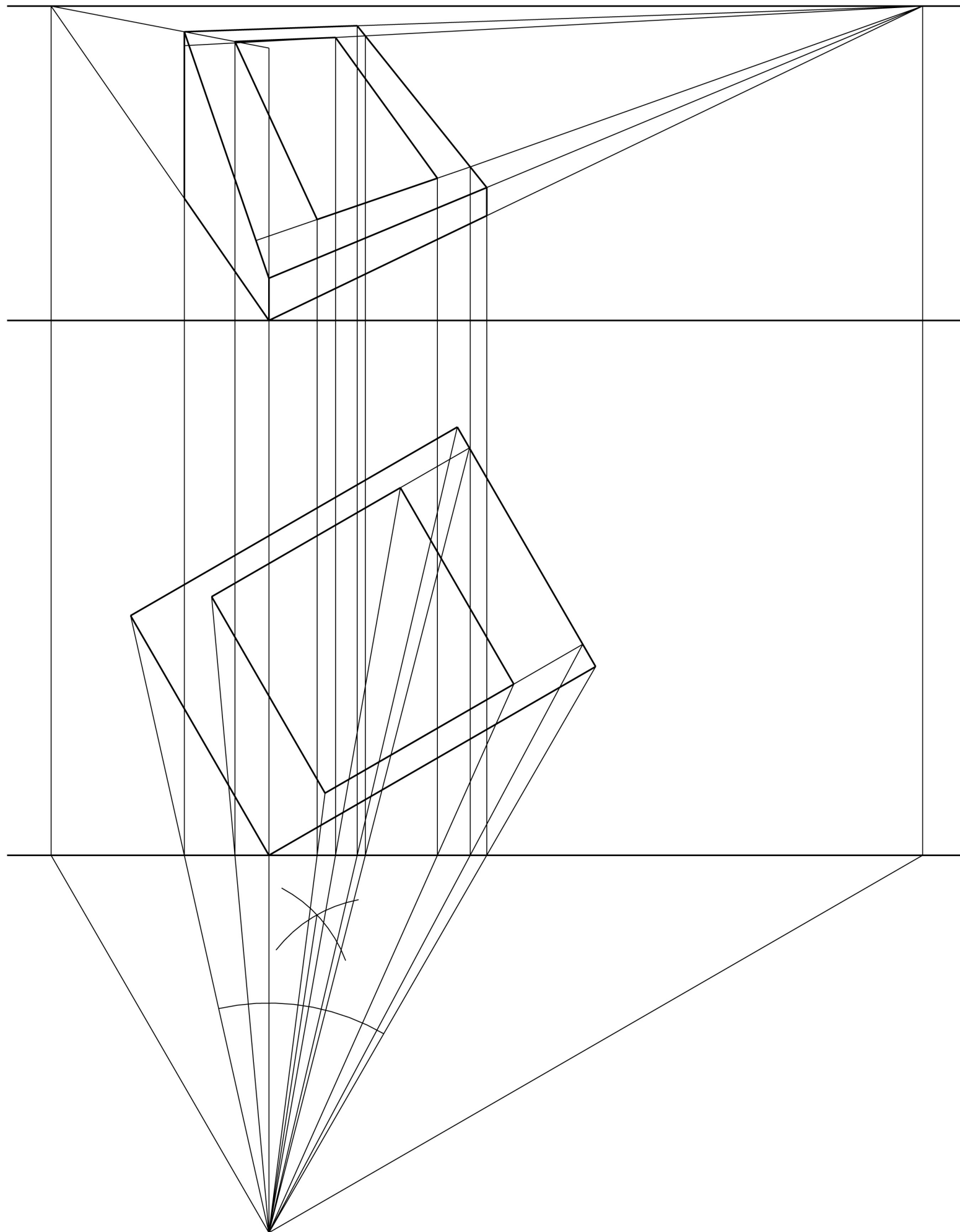
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Ordinary Level – Section (B)

L.84

Scale 1:50

Question B-1



MARKING SCHEME

Total (45)

Set up (4m)

Spectator (4m)

PP, GL and HL (6m)

Vanishing Points (4m)

Sight Lines (4m)

Base Outline (6m)

Heights (4m)

Sloping Surface (6m)

Completion (3m)

Presentation (4m)



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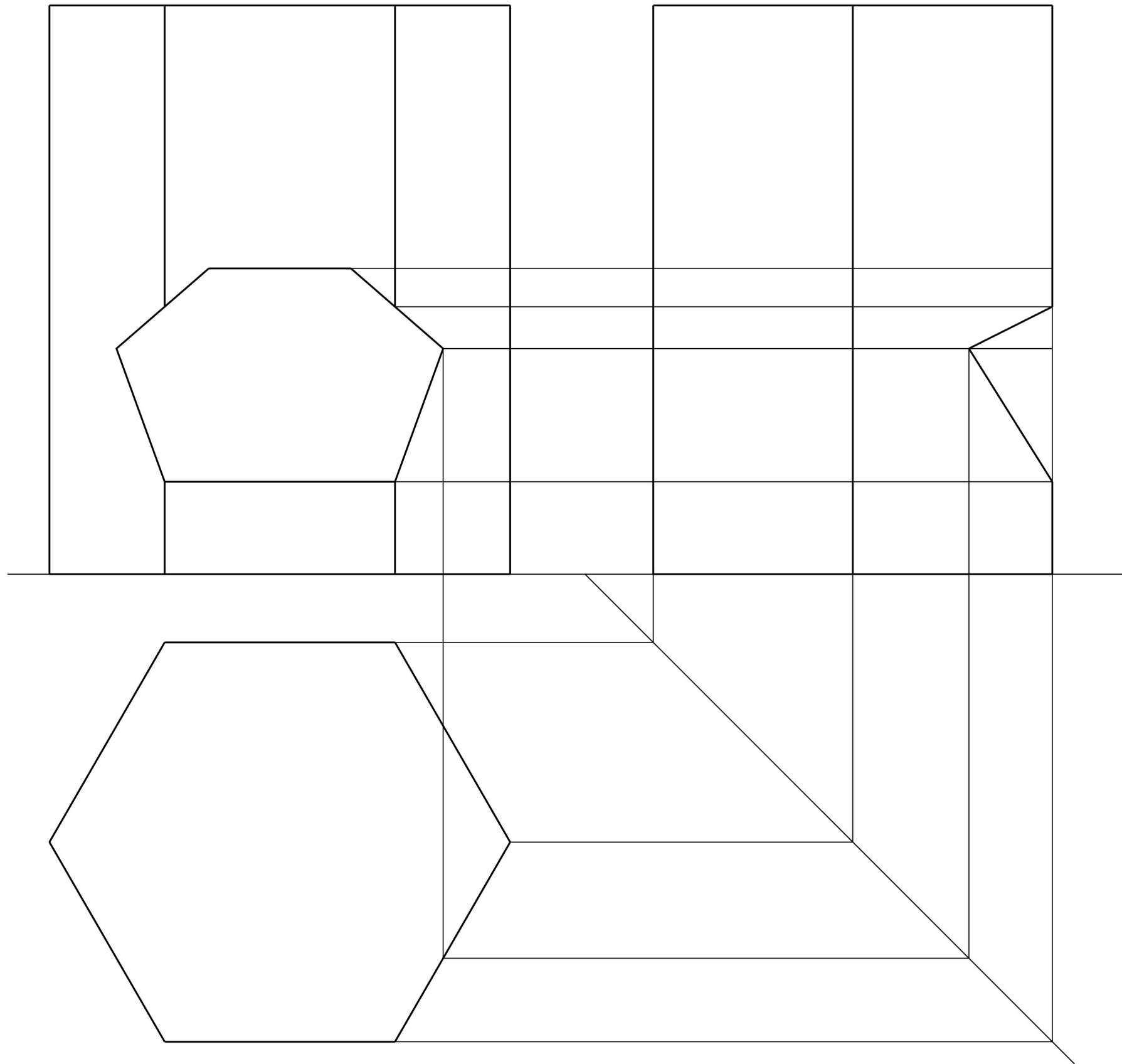
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Ordinary Level – Section (B)

L.84

Scale 1:1

Question B-2



MARKING SCHEME

Total (45)

- (a) Hexagon (5m)  
Elevation outline (5m)  
Hole in elevation (5m)
- (b) Outline of end view (8m)  
Piercing points (6m)  
Turning Points (6m)  
Completion (6m)

Presentation (4m)



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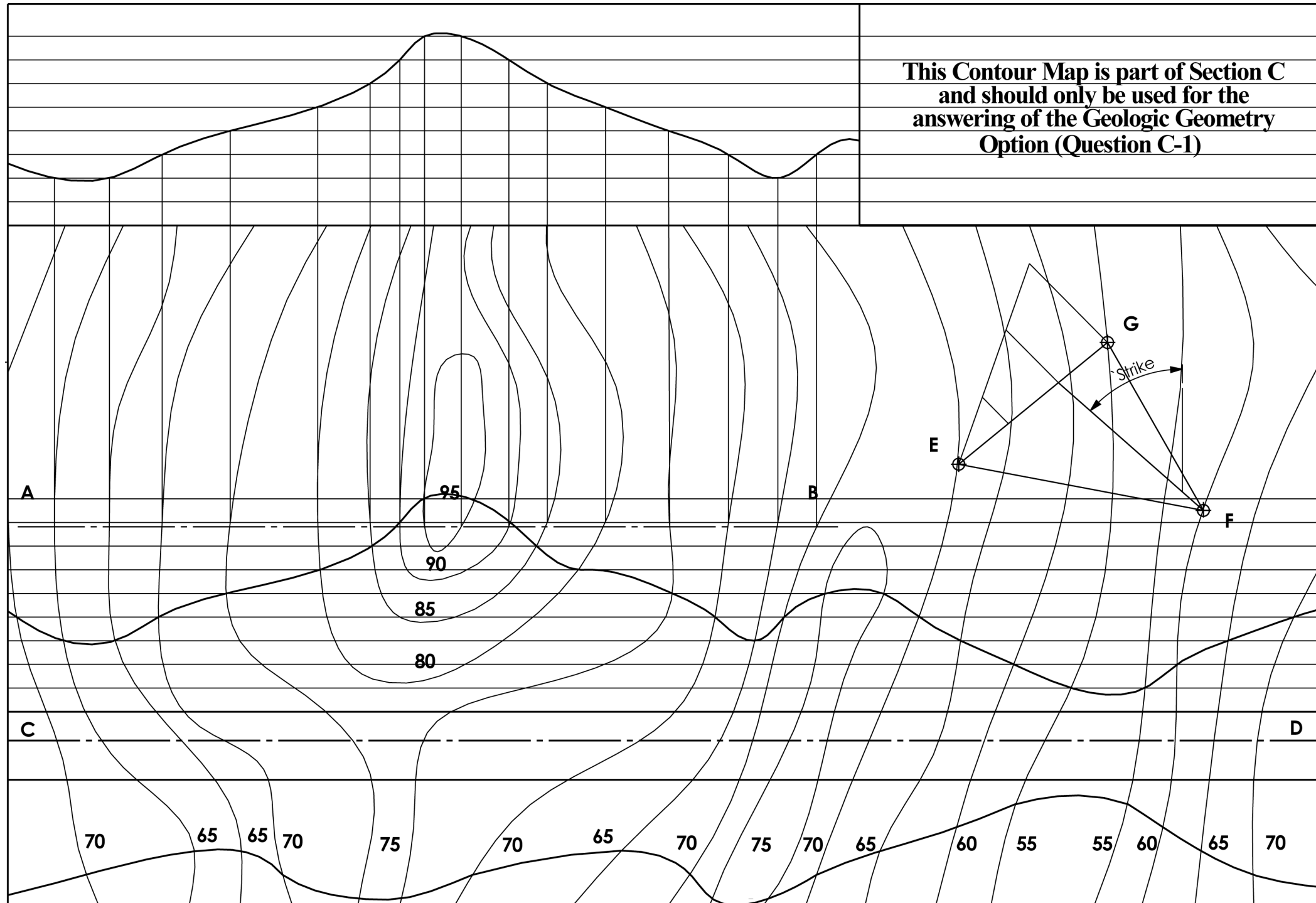
Ordinary Level – Section (B)

L.84

Scale 1:10

Question B-3

**This Contour Map is part of Section C  
and should only be used for the  
answering of the Geologic Geometry  
Option (Question C-1)**



**MARKING SCHEME**

Total (45)

- (a) Height lines (6m)  
Projectors (6m)  
Profile (7m)
- (b) 5m Parallel lines (5m)  
Plot points (4m)  
Curve (4m)
- (c) Method (6m)  
Strike (3m)

Presentation (4m)



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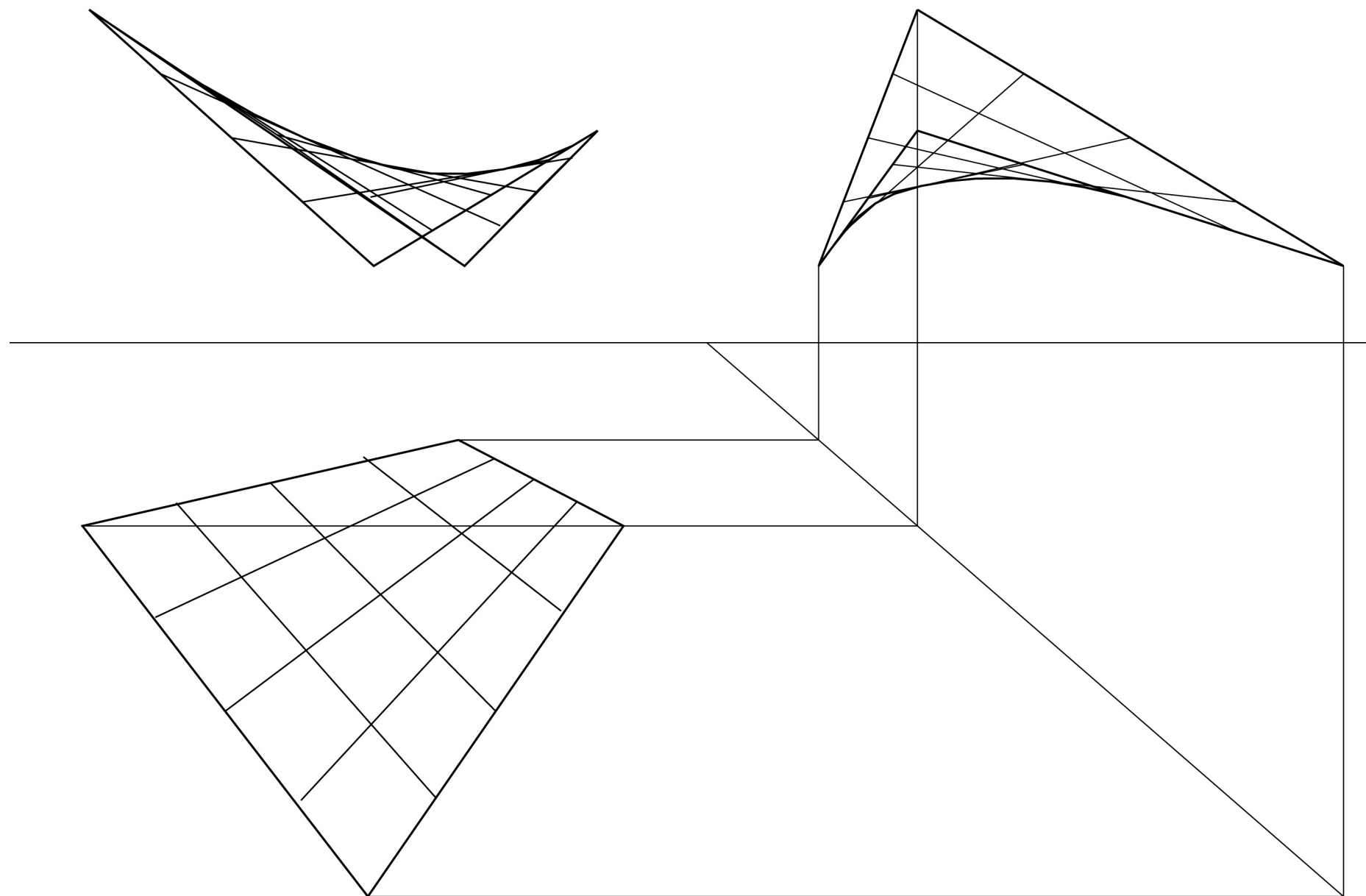
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Ordinary Level – Section (C)

L.84

Scale 1:1000

Question C-1



MARKING SCHEME

Total (45)

- (a) Elevation outline (5m)
- Elements (8m)
- Plan outline (5m)
- Elements (6m)

- (b) Projection (6m)
- Outline (5m)
- Elements (6m)

Presentation (4m)



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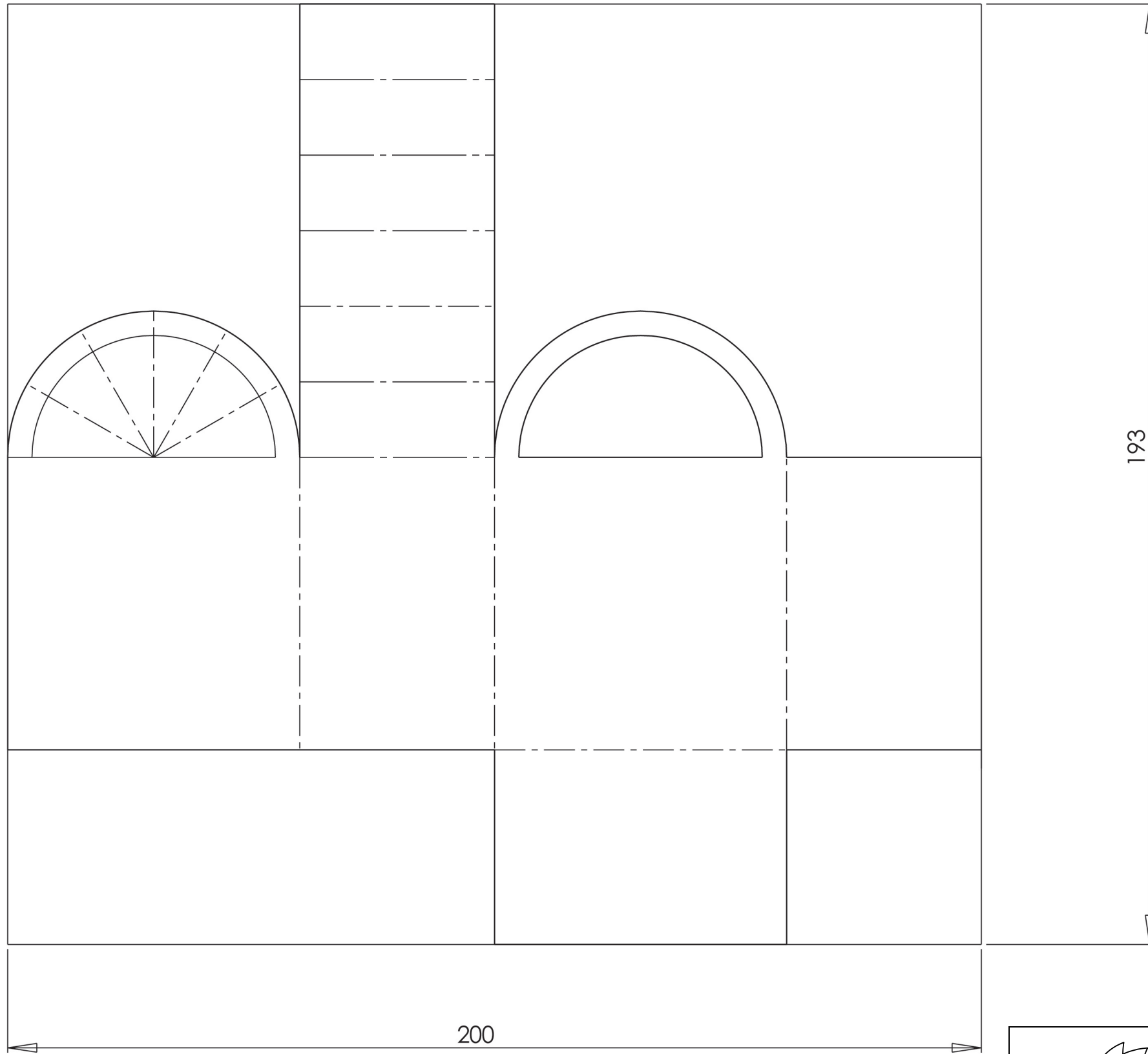
Ordinary Level – Section (C)

L.84

Scale 1:4

Question C-2





**MARKING SCHEME**

Total (45)

- (a) Plan (4m)  
Elevation outline (4m)  
Completion (6m)
- (b) Vertical surfaces (6m)  
Base (2m)  
Curved surface (8m)  
Completion (4m)
- (c) Outline (5m)  
Dimension (2m)

Presentation (4m)



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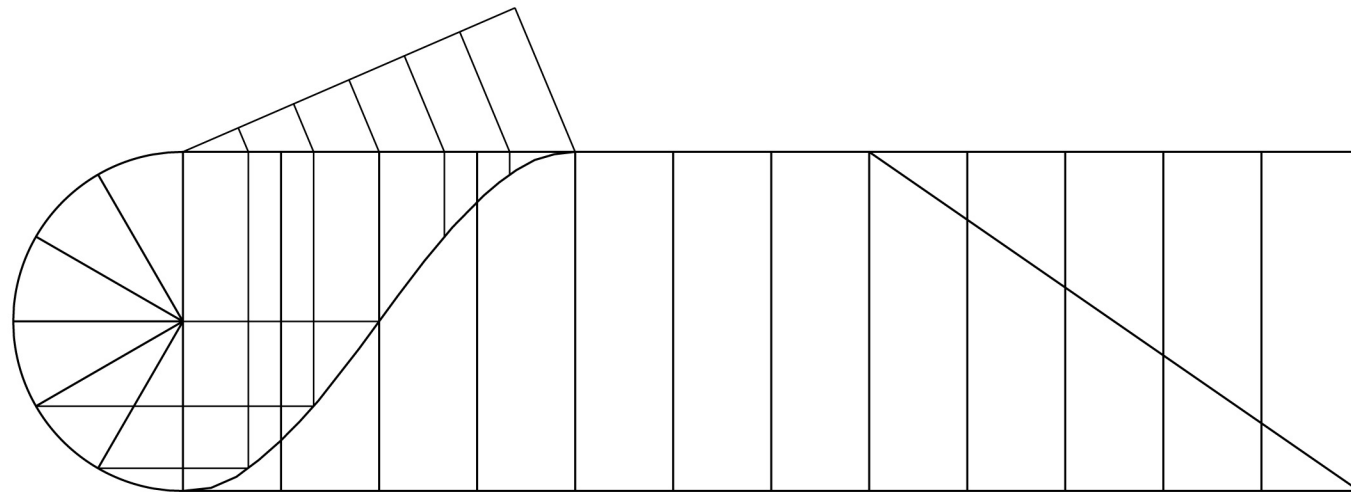
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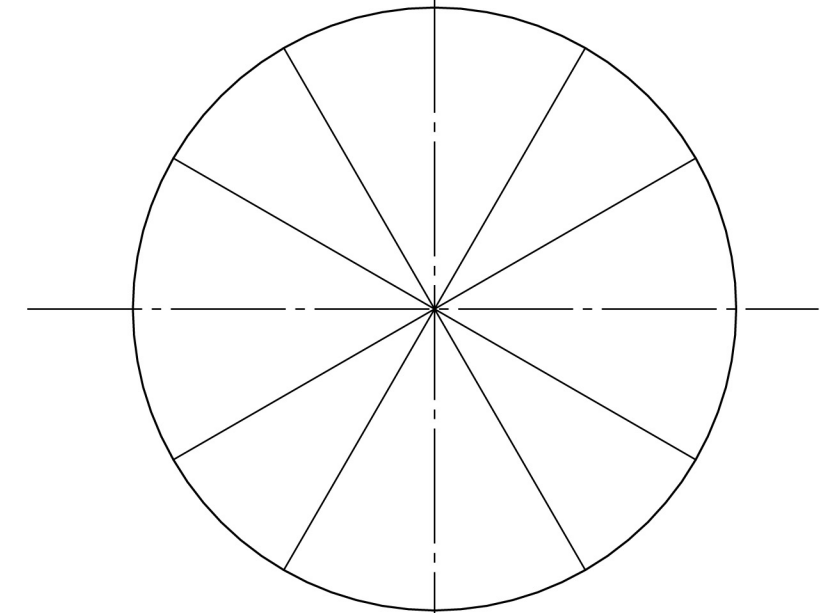
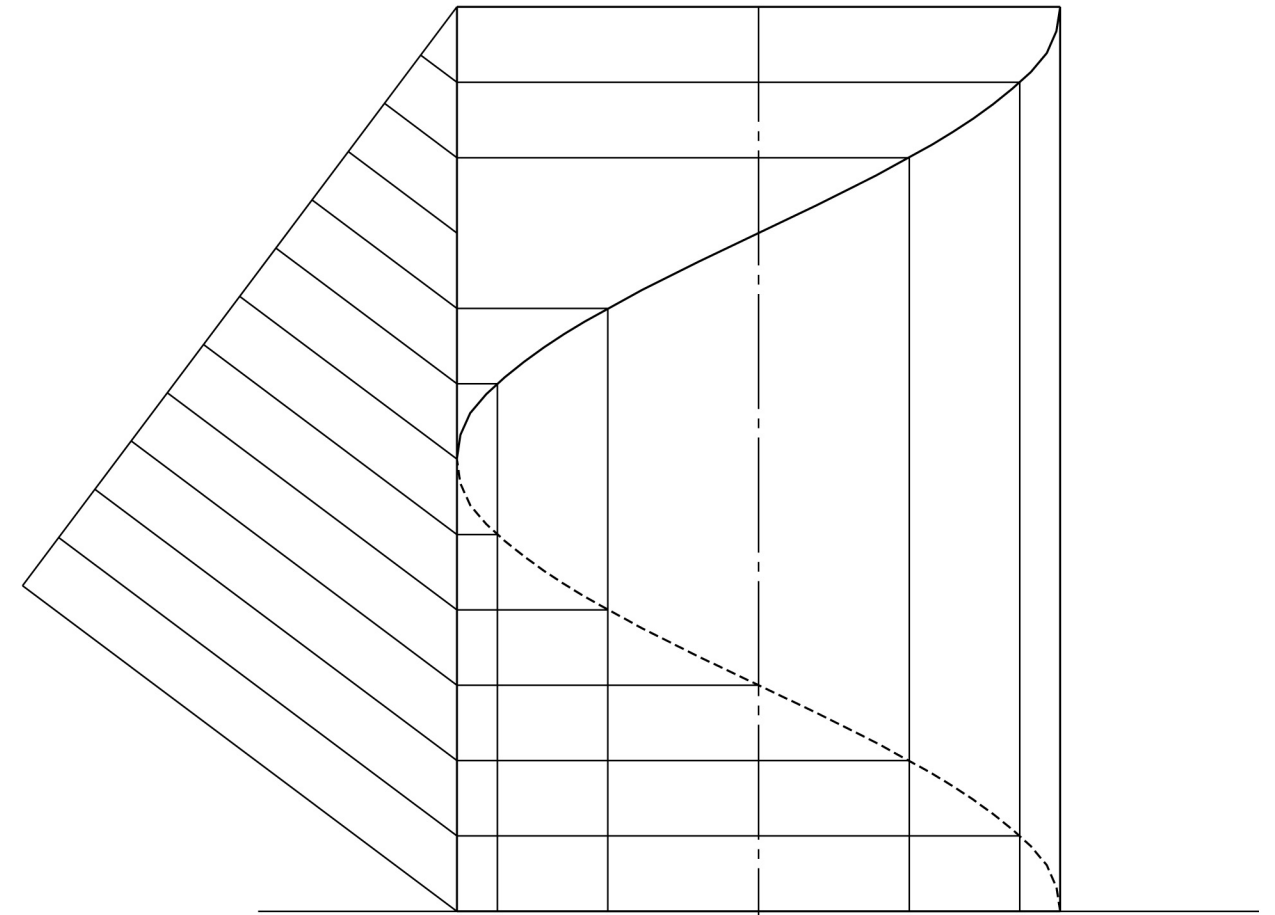
L.84

Scale 1:2

Question C-3



**Fig. C-4(a)**



**Fig. C-4(b)**

**MARKING SCHEME**

Total (45)

- (a) Outline (4m)
- Vertical divisions (2m)
- SHM construction (6m)
- Dwell (2m)
- UV construction (4m)
- Completion (3m)

- (b) Outline (4m)
- Division in plan (4m)
- Elevation construction (8m)
- Curve (4m)

Presentation (4m)



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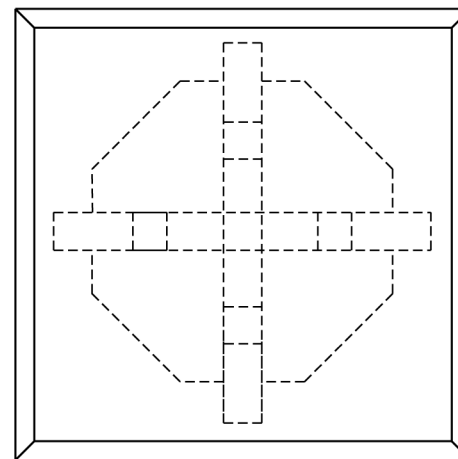
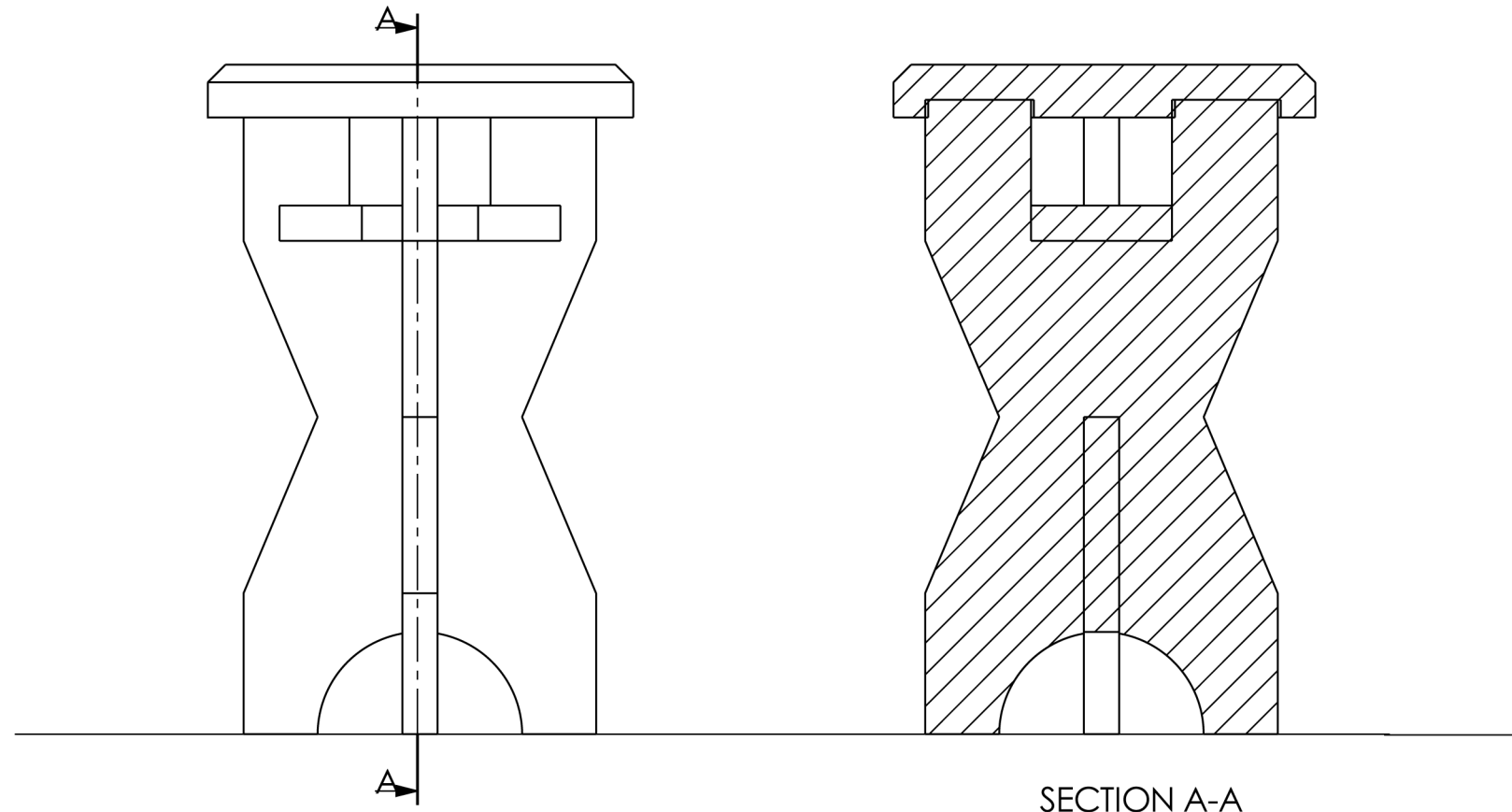
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Ordinary Level – Section (C)

L.84

Scale 1:1

Question C-4



**MARKING SCHEME**

Total (45)

Relative positioning of components (7m)

Elevation

Outline (5m)

Completion (5m)

Plan

Outline (2m)

Completion (6m)

Sectional View

Outline (5m)

Completion (5m)

Drawing completion

Hatching (3m)

Centrelines (3m)

Presentation (4m)



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Scale 1:1

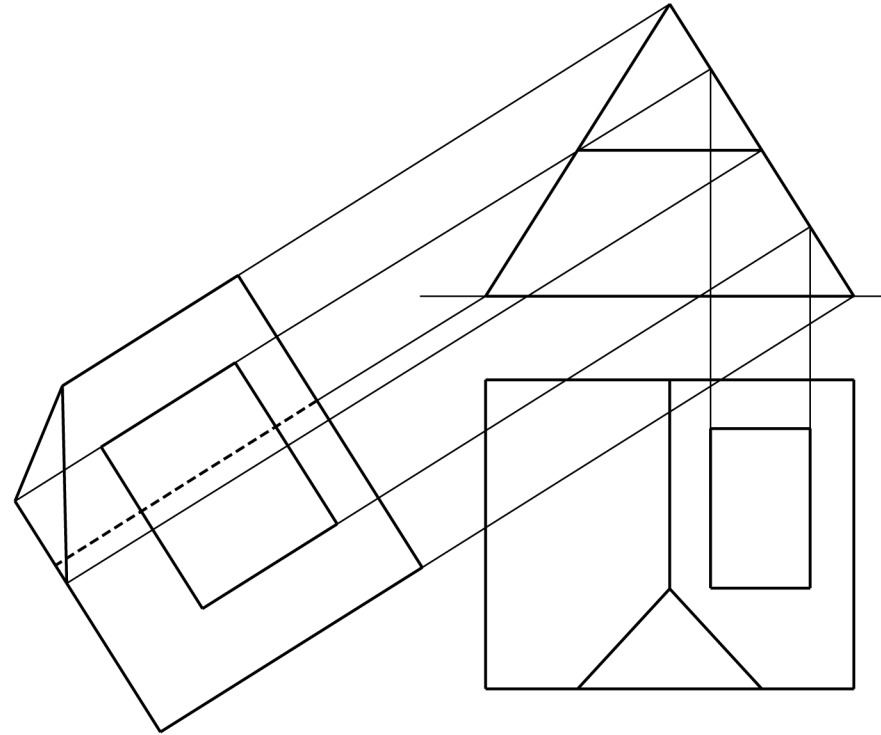
Question C-5

## SECTION A - Core - Answer Any Three of the questions on this A3 sheet

**A-1.** The graphic below shows a portion of a roof with a solar panel.

The drawing on the right shows the elevation and plan of a portion of the roof including the solar panel.

Project an auxiliary plan of the roofing surfaces which will show the true shape of the solar panel.



### MARKING SCHEME

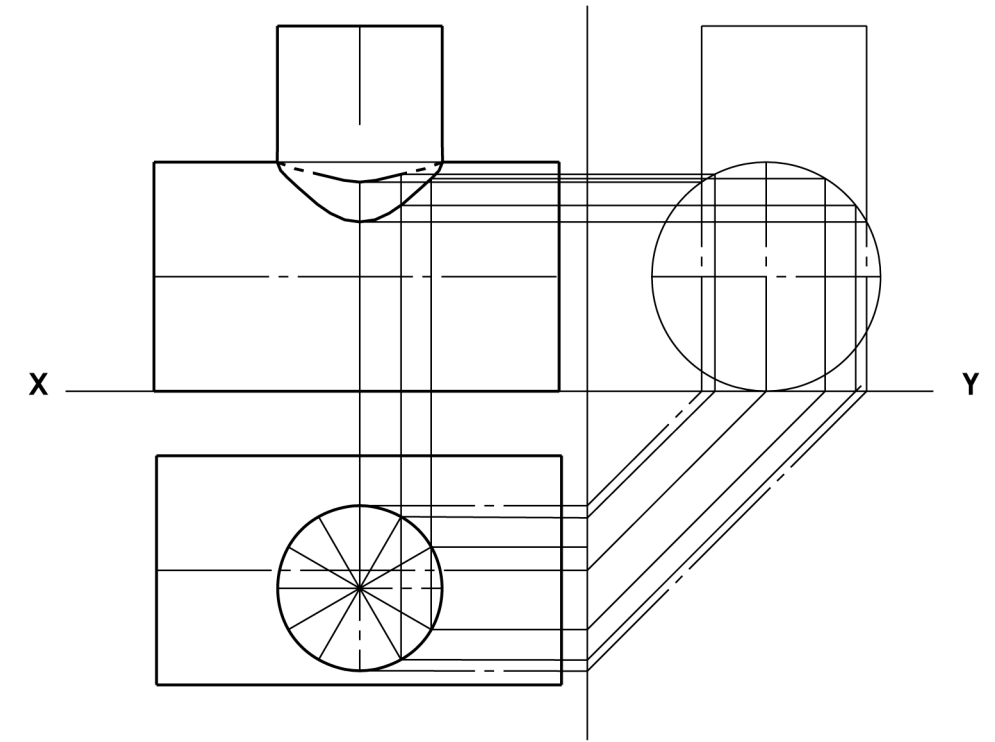
Total (20)

Line of vision (4m)  
Projectors (3m)  
Widths in plan (5m)  
TS of solar panel (4m)  
Completion (4m)

**A-3.** The graphic below shows two intersecting cylindrical pipes.

The drawing on the right shows the plan and outline elevation of the pipes.

Complete the elevation to show all curves of interpenetration.



### MARKING SCHEME

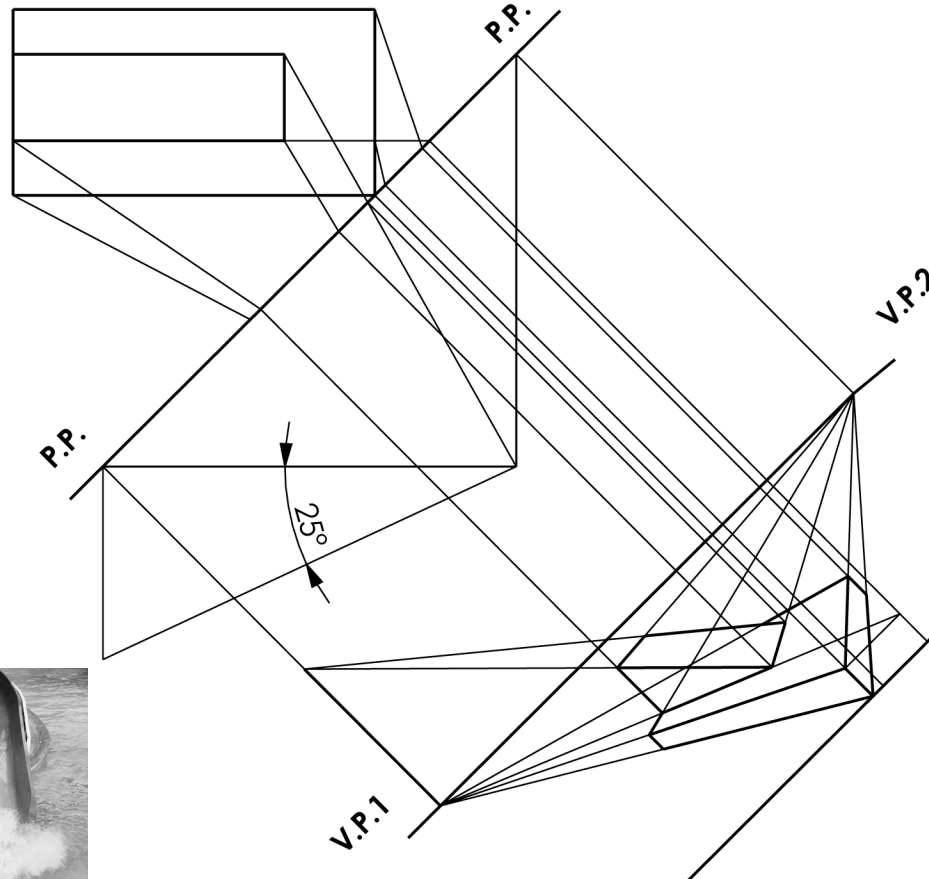
Total (20)

End elevation (4m)  
Projectors to elevation (4m)  
Points on curve (6m)  
Completion (3m)  
Hidden detail (3m)

**A-2.** The graphic below shows a pool and a waterslide.

The drawing on the right is a partially completed perspective view of the pool base and the waterslide.

- (a) Complete the perspective drawing of the pool base.
- (b) Determine an auxiliary vanishing point for the 25 degree sloping faces of the slide and complete the drawing.



### MARKING SCHEME

Total (20)

Sight lines (2m)  
Projectors (2m)  
Complete base (6m)  
Auxiliary VP (4m)  
Completion (6m)

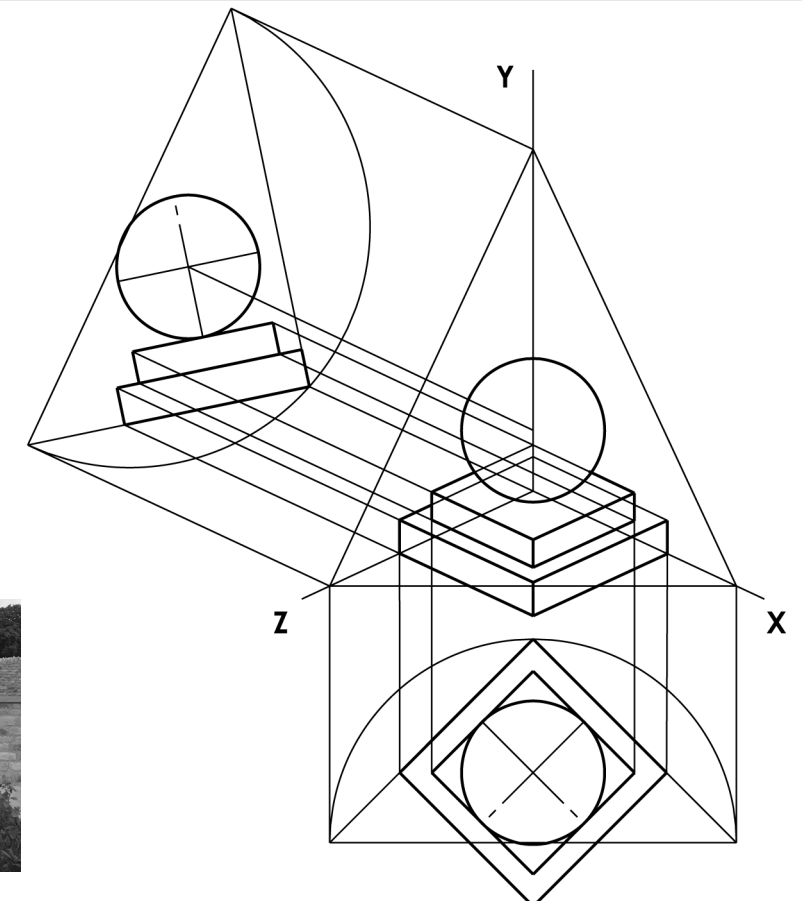


**A-4.** A graphic below shows an entrance gate.

The top of the pillar consists of two square based prisms and a sphere.

A set of diametric axis are shown on the right and the elevation and plan of the top of the pillar have been positioned as shown.

Draw the axonometric projection of the pillar top.

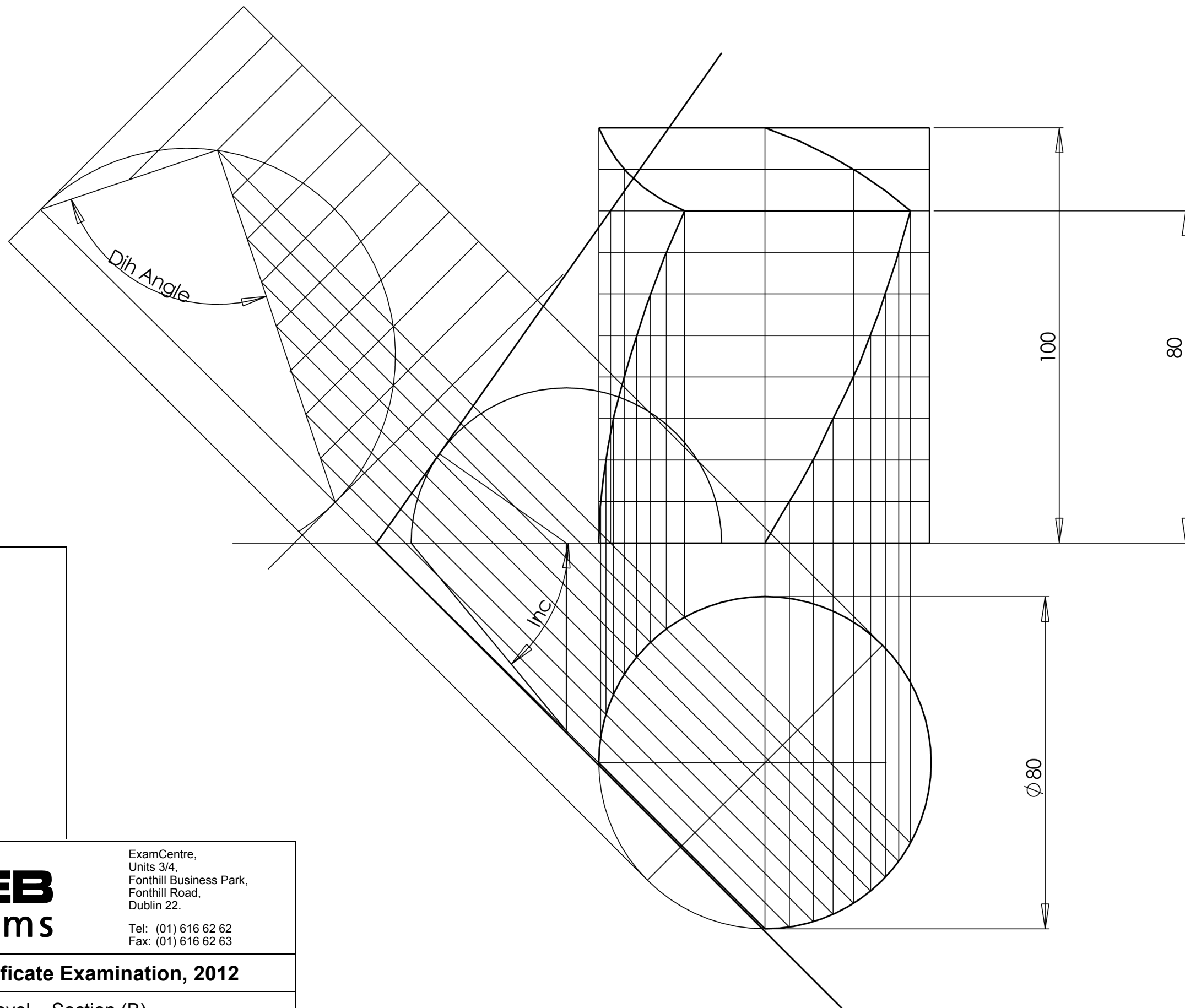


### MARKING SCHEME

Total (20)

Projectors (4m)  
Base outline (4m)  
Upper base (4m)  
Completion (4m)  
Sphere (4m)

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MARKING SCHEME

Total (45)

- Outline (4m)
- Auxiliary / method (8m)
- Semi circle (4m)
- Construction (4m)
- Curves in elevation (8m)

HT (6m)

VT (4m)

Method (4m)

Angle (3m)



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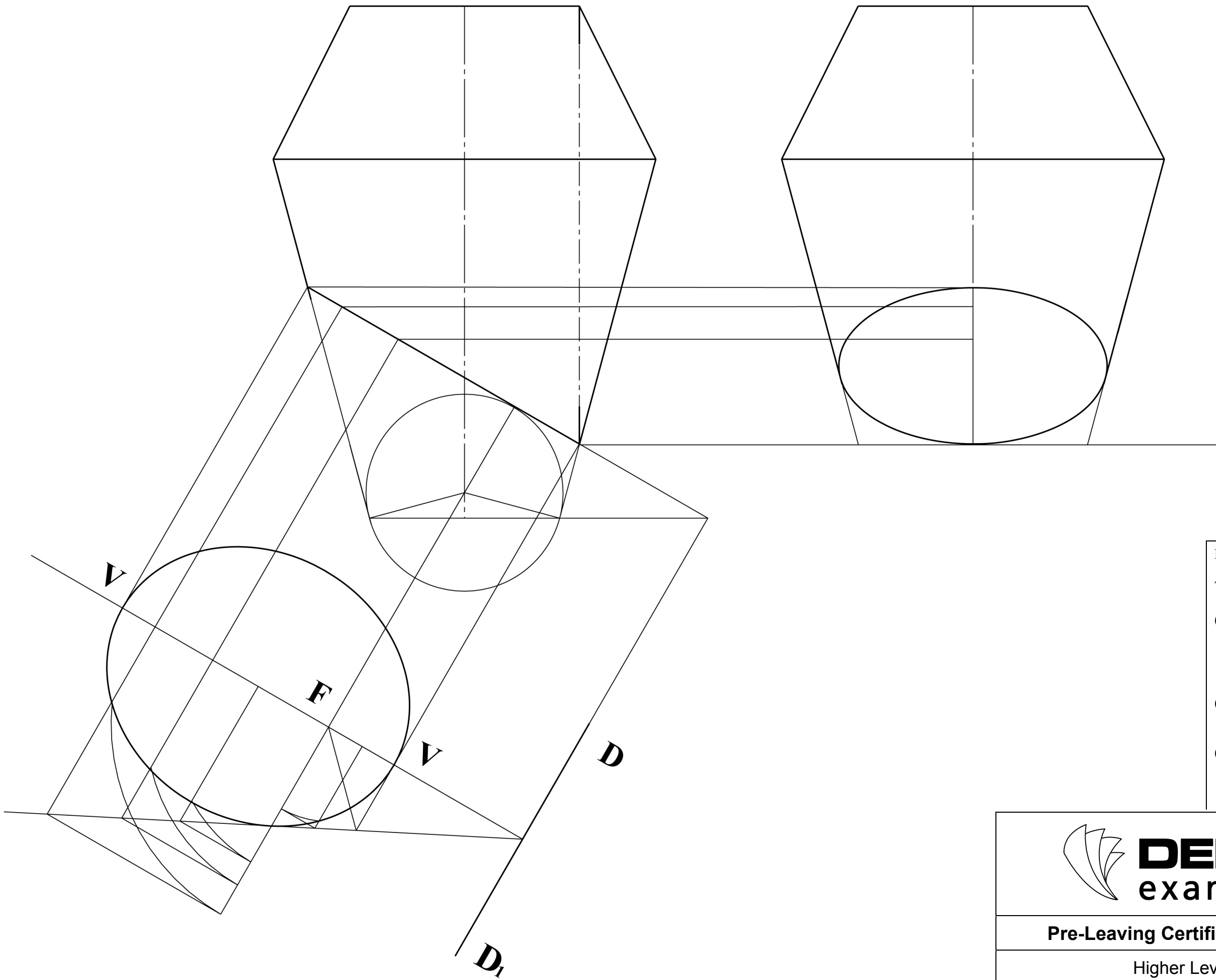
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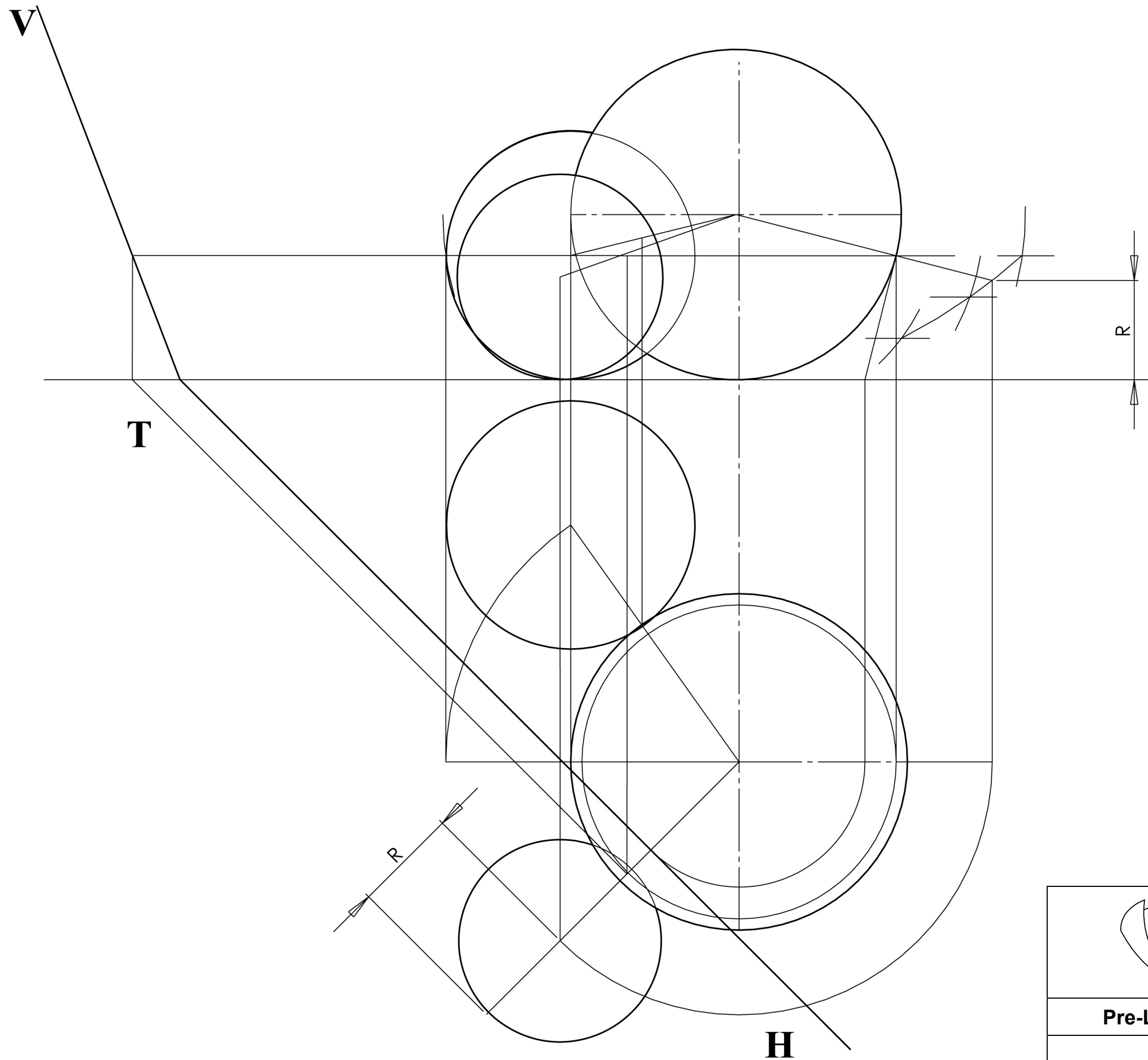
Scale 1:2

Question B-1



<b>MARKING SCHEME</b>	
Total (45)	
(a)	Elevation (4m) End view outline (4m) Curve (10m) Completion (6m)
(b)	Method (6m) Curve (6m)
(c)	Focal Sphere (3m) Focal Point (3m) Directrix (3m)

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L.85	Scale 1:10	Question B-2



MARKING SCHEME

Total (45)

- (a) Elevation (6m)  
Plan of red sphere (4m)  
Construction for green sphere (4m)  
Completion (4m)
- (b) Find Radius (6m)  
Rotate (6m)  
Completion (4m)
- (c) Construction (4m)  
HT (4m)  
VT (3m)



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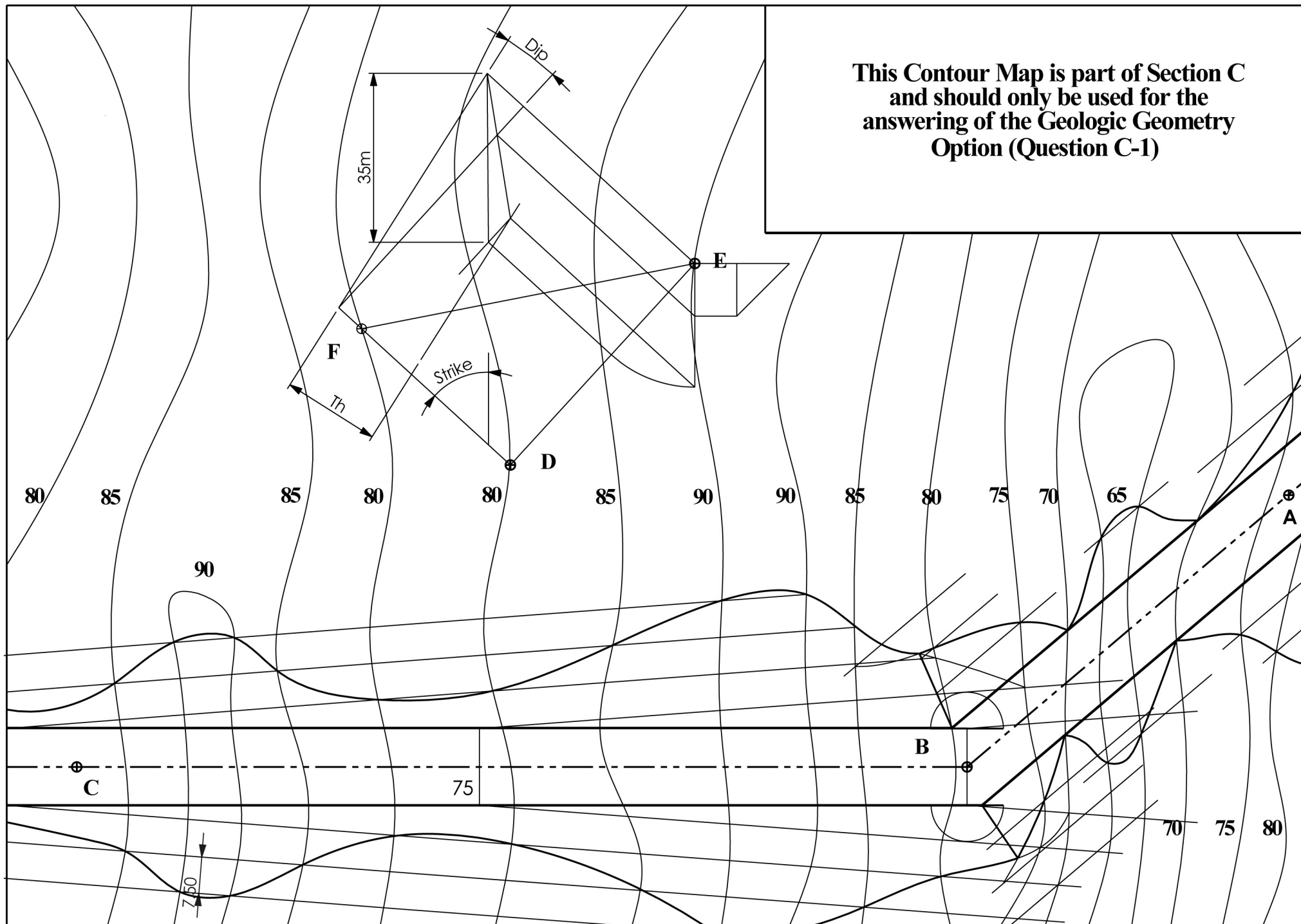
Higher Level – Section (B)

L.85

Scale 2:1

Question B-3

This Contour Map is part of Section C  
and should only be used for the  
answering of the Geologic Geometry  
Option (Question C-1)



MARKING SCHEME

Total (45)

- (a) Earthworks A-B  
Parallel lines (10m)  
Intersections / curves (9m)

Earthworks B-C  
Arc (5m)  
Parallel Lines (4m)  
Intersection / curves (7m)

- (b) Plot strike (3m)  
Dip (3m)  
Plot borehole (2m)  
Thickness (2m)



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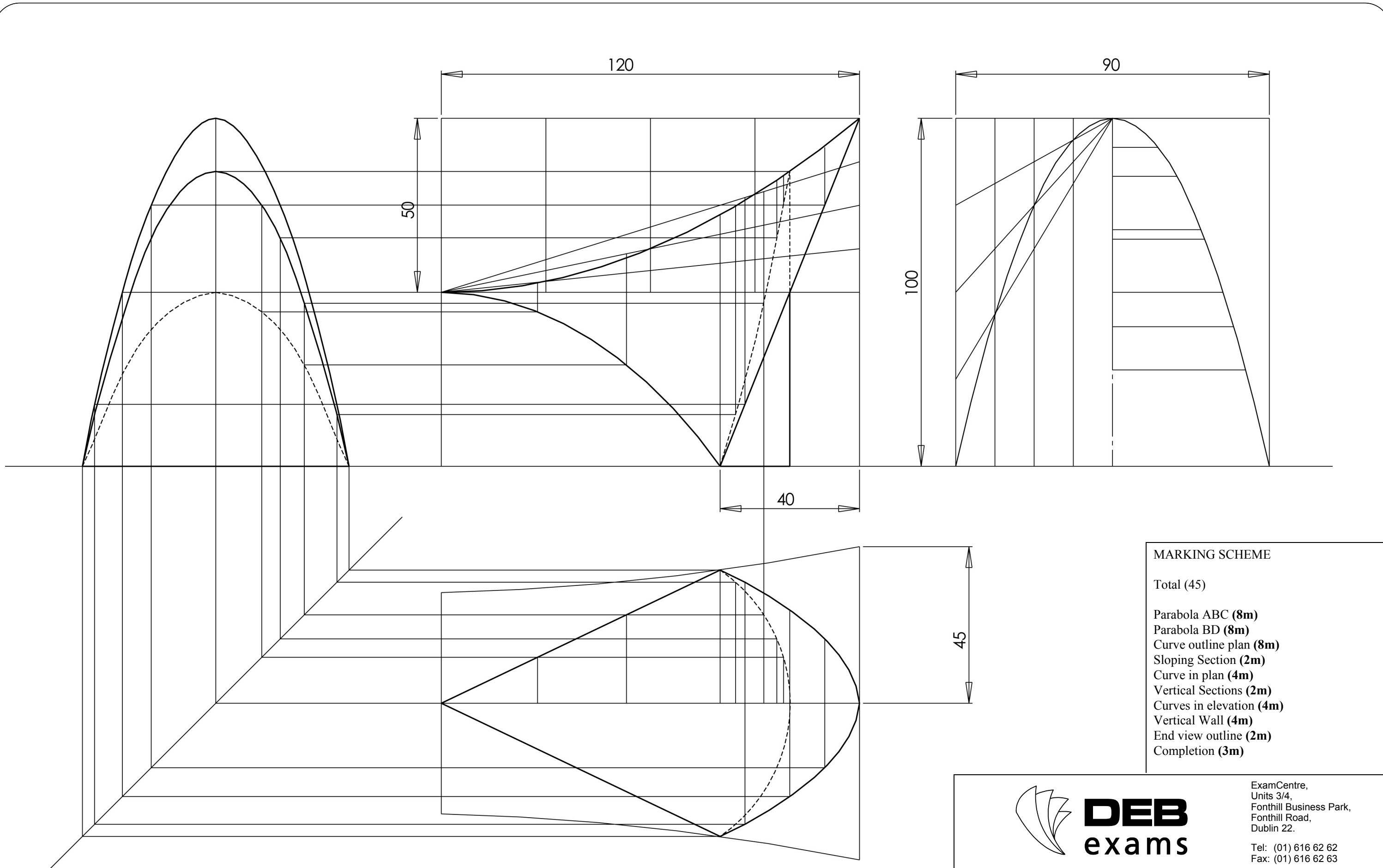
Higher Level – Section (C)

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Scale 1:1000

Question C-1





MARKING SCHEME

Total (45)

- Parabola ABC (8m)
- Parabola BD (8m)
- Curve outline plan (8m)
- Sloping Section (2m)
- Curve in plan (4m)
- Vertical Sections (2m)
- Curves in elevation (4m)
- Vertical Wall (4m)
- End view outline (2m)
- Completion (3m)



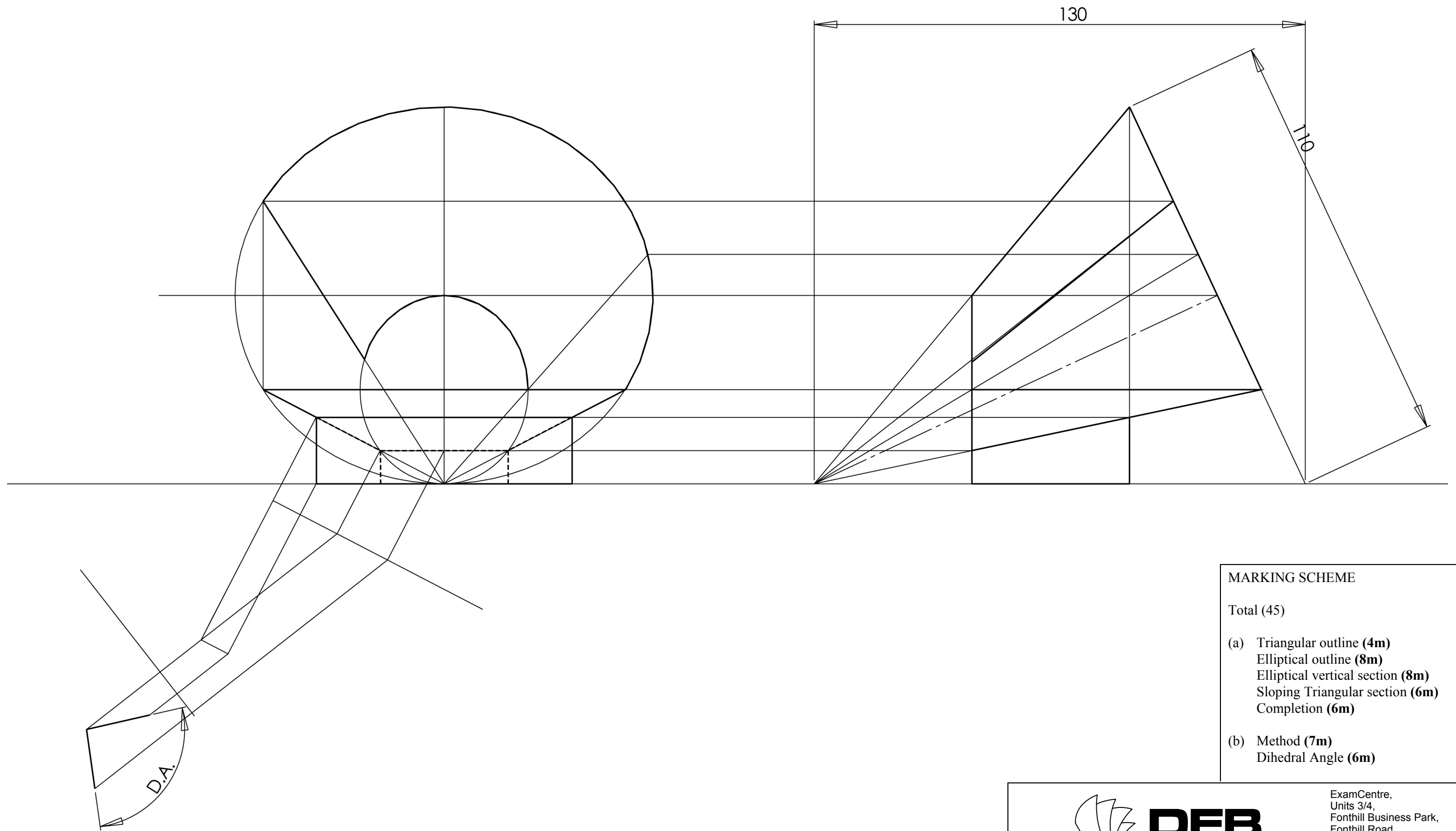
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Higher Level – Section (C)

L.85	Scale 1:4	Question C-2
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MARKING SCHEME

Total (45)

- (a) Triangular outline (4m)
- Elliptical outline (8m)
- Elliptical vertical section (8m)
- Sloping Triangular section (6m)
- Completion (6m)
- (b) Method (7m)
- Dihedral Angle (6m)



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Scale 1:4

Question C-3

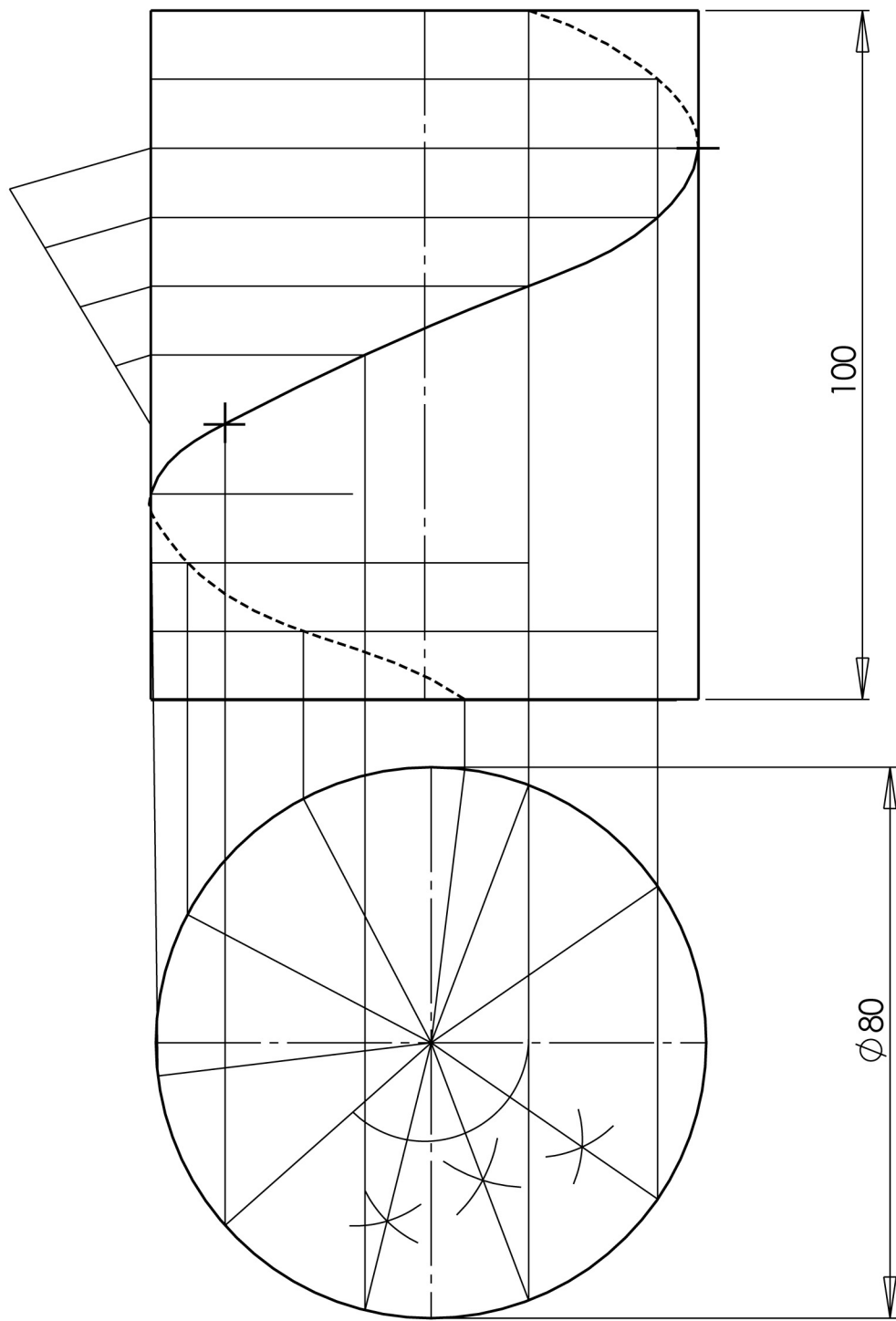


Fig. C-4(a)

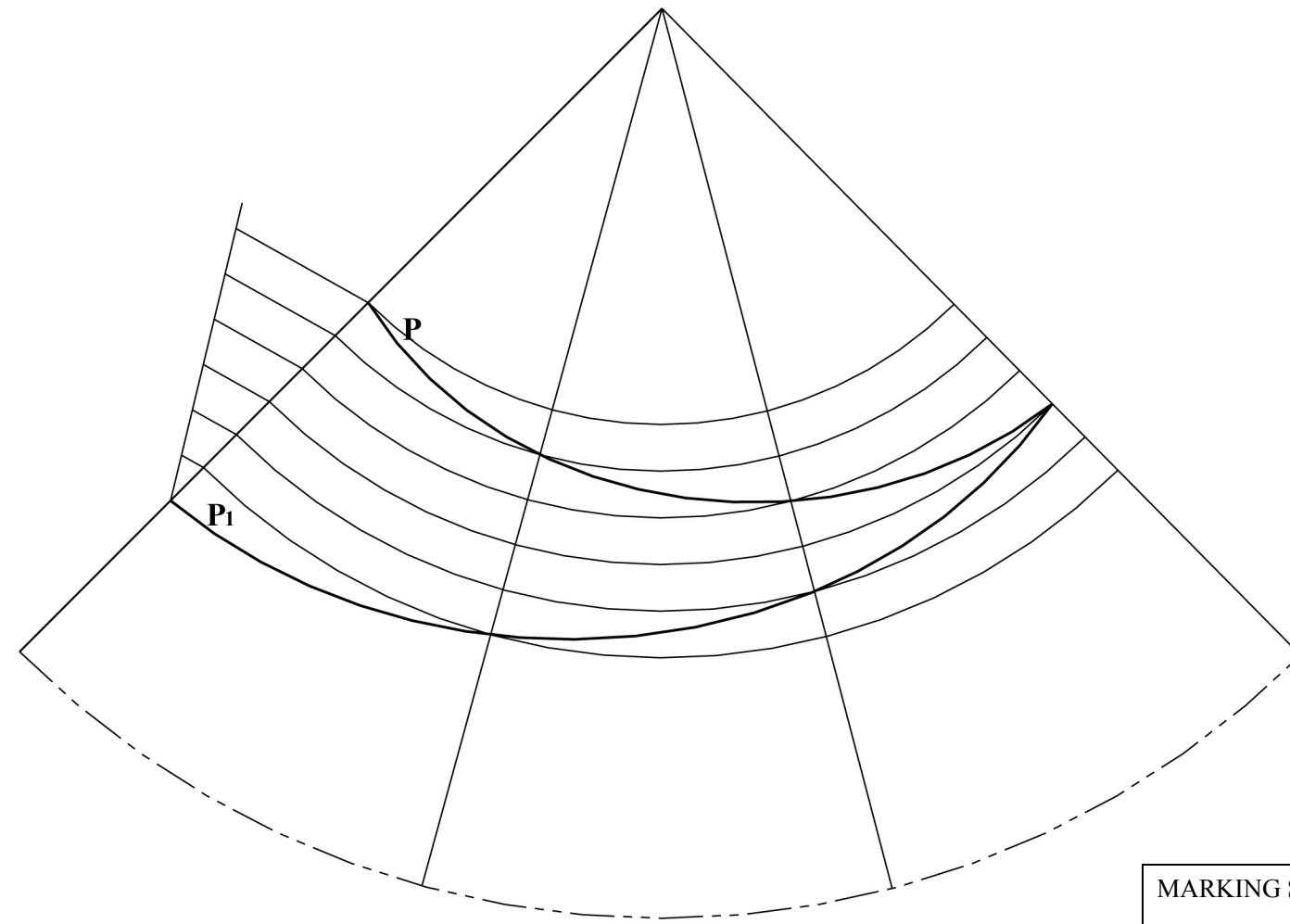


Fig. C-4(b)

MARKING SCHEME

Total (45)

- (a) Outline (4m)
- Bisect Angle (8m)
- Curve (6m)
- Extrapolation of curve (6m)
- Curve (4m)
- (b) Set up (4m)
- Construction (8m)
- Curve (5m)



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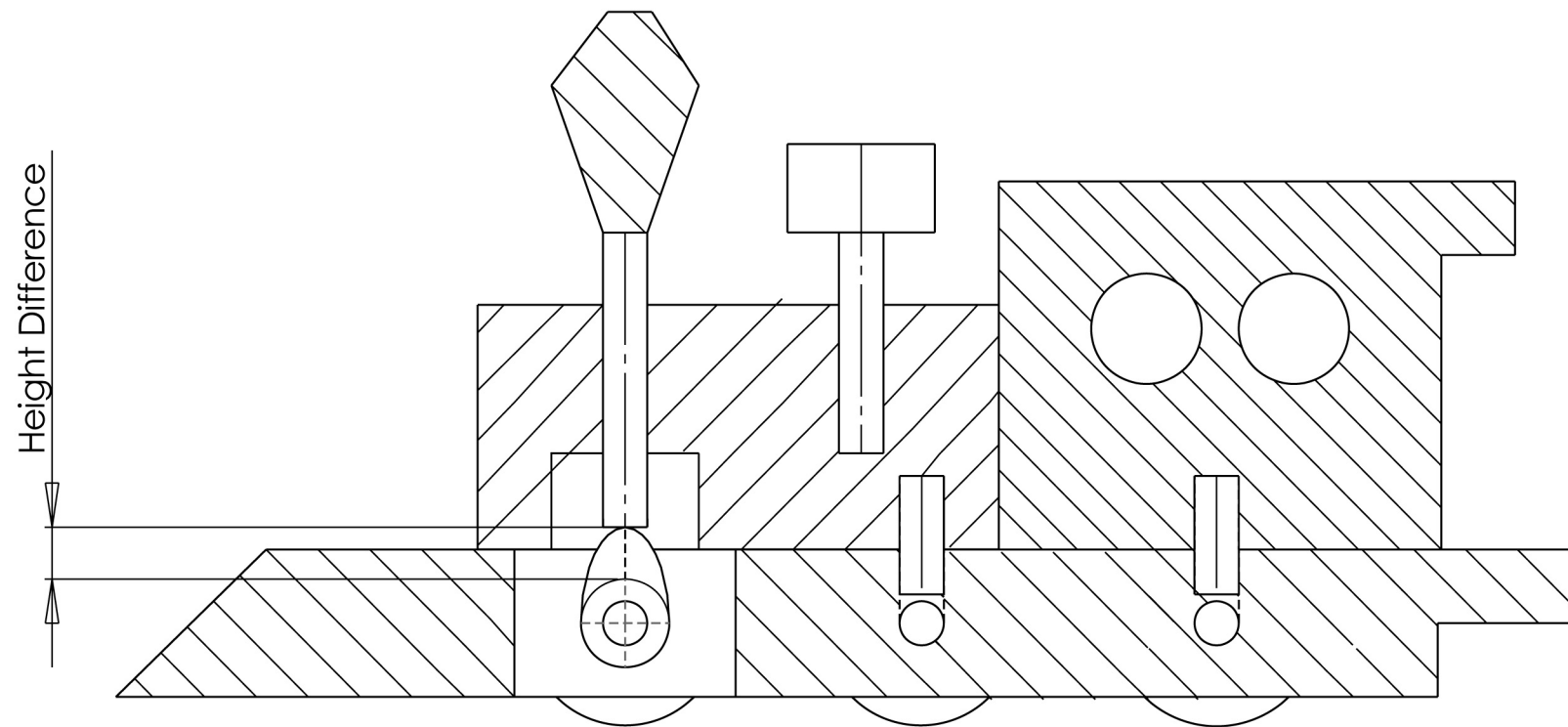
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Higher Level – Section (C)

L.85

Scale 1:4

Question C-4



MARKING SCHEME

Total (45)

- a) Relative positioning of parts (7m)  
 Base (4m)  
 Wheels (3m)  
 Cabin (4m)  
 Engine (3m)  
 Dowel (2m)  
 Moving Stack (2m)  
 Cam (4m)  
 Chimney (4m)  
 Drawing completion (9m)
- (b) Method and height difference (3m)



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Scale 1:1

Question C-5