



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate 2024

Marking Scheme

Design and Communication Graphics

Ordinary Level

Note to teachers and students on the use of published marking schemes

Marking schemes published by the State Examinations Commission are not intended to be standalone documents. They are an essential resource for examiners who receive training in the correct interpretation and application of the scheme. This training involves, among other things, marking samples of student work and discussing the marks awarded, so as to clarify the correct application of the scheme. The work of examiners is subsequently monitored by Advising Examiners to ensure consistent and accurate application of the marking scheme. This process is overseen by the Chief Examiner, usually assisted by a Chief Advising Examiner. The Chief Examiner is the final authority regarding whether or not the marking scheme has been correctly applied to any piece of candidate work.

Marking schemes are working documents. While a draft marking scheme is prepared in advance of the examination, the scheme is not finalised until examiners have applied it to candidates' work and the feedback from all examiners has been collated and considered in light of the full range of responses of candidates, the overall level of difficulty of the examination and the need to maintain consistency in standards from year to year. This published document contains the finalised scheme, as it was applied to all candidates' work.

In the case of marking schemes that include model solutions or answers, it should be noted that these are not intended to be exhaustive. Variations and alternatives may also be acceptable. Examiners must consider all answers on their merits, and will have consulted with their Advising Examiners when in doubt.

Future Marking Schemes

Assumptions about future marking schemes on the basis of past schemes should be avoided. While the underlying assessment principles remain the same, the details of the marking of a particular type of question may change in the context of the contribution of that question to the overall examination in a given year. The Chief Examiner in any given year has the responsibility to determine how best to ensure the fair and accurate assessment of candidates' work and to ensure consistency in the standard of the assessment from year to year. Accordingly, aspects of the structure, detail and application of the marking scheme for a particular examination are subject to change from one year to the next without notice.



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Note: Other valid solutions are acceptable and are marked accordingly.

Question A-1**MARKS****(a) Points on right hand side (11)**

- (i) Complete division of line **CD**4
- (ii) Complete division of line **CV**3
- (iii) Construction lines (2 sets)2
- (iv) Identify remaining points on RHS2

(b) Points on left hand side (3)

- (v) Locate points on LHS curve3

(c) Parabolic curve (4)

- (vi) Complete curve on RHS2
- (vii) Draw curve on LHS2
- (viii) **Presentation**2

Total = 20**Question A-2****MARKS****Perspective (18)**

- (i) Radiate lines to correct vanishing points.....4
- (ii) Complete front RHS.....6
- (iii) Complete the LHS4
- (iv) Complete the top surface4
- (v) **Presentation**2

Total = 20

Question A-3**MARKS****(a) Plan (12)**

- (i) Projections from elevation3
- (ii) Locate points in plan.....3
- (iii) Draw surface.....6

(b) End view (6)

- (iv) Locate points in end view3
- (v) Complete the end view.....3

- (vi) **Presentation**2

Total = 20**Question A-4****MARKS****(a) Left hand side (16)**

- (i) Draw R30 arc5
- (ii) Draw R15 arc5
- (iii) Locate centre of R70 arc.....4
- (iv) Draw R70 arc2

(b) Point of contact (2)

- (v) Locate point of contact2

- (vi) **Presentation**2

Total = 20

Question B-1**MARKS****(a) Elevation (20)**

- (i) Draw base **10**
- (ii) Draw top **10**

(b) Plan (20)

- (iii) Draw base **10**
- (iv) Draw top **10**

(c) Auxiliary elevation (15)

- (v) X_1Y_1 line parallel to plan of surface **A** **1**
- (vi) Projections from plan **1**
- (vii) Transfer of heights from elevation **3**
- (viii) Draw surface **A** **4**
- (ix) Complete auxiliary elevation **6**

- (x) **Presentation** **5**

Total = 60

Question B-2**MARKS****(a) Initial setup (6)**

- (i) Draw equilateral triangle **3**
- (ii) Draw X, Y and Z axes **3**

(b) Elevation and Plan (14)

- (iii) Projections & semi-circle to set up elevation **4**
- (iv) Draw elevation in the correct position **3**
- (v) Projections & semi-circle (or 45° lines) to set up plan **4**
- (vi) Draw plan in the correct position **3**

(c) Axonometric Projection of Outline (23)

- (vii) Projections from elevation and plan **6**
- (viii) Axonometric projection of RHS surface **5**
- (ix) Axonometric projection LHS surface **7**
- (x) Axonometric projection of roadway **5**

(d) Axonometric Projection of semi-circular opening (12)

- (xi) Divisions on semi-circle in elevation **3**
- (xii) Corresponding divisions in plan **3**
- (xiii) Projections from elevation and plan **3**
- (xiv) Draw axonometric projection of the semi-circular curve **3**

- (xv) **Presentation** **5**

Total = 60

Question B-3**MARKS****(a) Given plan & elevation (24)**

- (i) Draw the outline plan as given **9**
- (ii) Projections from plan **3**
- (iii) Draw the elevation as given **12**

(b) Interpenetration (16)***Interpenetration on Left Hand Side (8)***

- (iv) Projection from LHS of elevation **2**
- (v) Locate points on LHS in plan **3**
- (vi) Complete LHS of plan **3**

Interpenetration on Top (8)

- (vii) Projection from top of elevation **2**
- (viii) Locate points on top of plan **3**
- (ix) Complete top of plan **3**

(c) End view (15)

- (x) Transfer of widths from plan **4**
- (xi) Projection of heights from elevation **3**
- (xii) Complete the end view of main structure **4**
- (xiii) Complete the end view profile **4**
- (xiv) ***Presentation*** **5**

Total = 60

Question C-1**MARKS****(a) Profile (37)**

- (i) Measure heights and draw horizontal lines **13**
- (ii) Projections from intersections between line **AB** and contours **11**
- (iii) Draw the profile **13**

(b) Triangle CDE (8)

- (iv) Plan of **CDE** **3**
- (v) Elevation of **CDE** **5**

(c) Strike and dip (10)

- (vi) Horizontal line in elevation **1**
- (vii) Strike in plan **3**
- (viii) Viewing direction for dip **4**
- (ix) Determine dip (2 heights, edge view) **2**
- (x) **Presentation** **5**

Total = 60

Question C-2

	MARKS
(a) Plan (27)	
(i) Draw outer circle	8
(ii) Draw inner circle	8
(iii) Division of inner circle	5
(iv) Twelve elements	6
(b) Elevation (20)	
(v) Draw the outline of the structure	10
(vi) Projection of elements from plan	4
(vii) Locate extremities of elements	3
(viii) Draw elements	3
(c) Freehand curves in elevation (8)	
(ix) Draw freehand curves	8
(x) Presentation	5
	Total = 60

Question C-3**MARKS****(a) Elevation and plan (28)**

- (i) Draw the outline of the plan **10**
- (ii) Draw the opening in plan **6**
- (iii) Draw the elevation **12**

(b) End view (6)

- (iv) Projections from elevation and plan **3**
- (v) Draw the end view..... **3**

(c) Surface Development (21)

- (vi) Appropriate layout of surface development **1**
- (vii) Development of bottom surface **4**
- (viii) Development of front and back..... **4**
- (ix) Development of two curved surfaces..... **8**
- (x) Development of top surface **4**

- (xi) **Presentation** **5**

Total = 60

Question C-4**MARKS****(a) Link mechanism (26)**

- | | | |
|-------|--|-----------|
| (i) | Set up line diagram (O, A, B & C) | 10 |
| (ii) | Draw circle about O | 3 |
| (iii) | Division of circle | 3 |
| (iv) | Arm AC in rotated positions | 3 |
| (v) | Points on locus | 3 |
| (vi) | Draw locus | 4 |

(b) Displacement Diagram (29)

- | | | |
|--------|---|----------|
| (vii) | 360° division (widths on displacement diagram) | 5 |
| (viii) | Correct use of 70 mm height | 1 |
| (ix) | Establish follower position at 0°, 90°, 120°, 180° and 360° | 7 |
| (x) | 0° to 90°, Rise 70 mm with Uniform Velocity | 3 |
| (xi) | 90° to 120°, Dwell | 3 |
| (xii) | 120° to 180°, Fall 20 mm with Uniform Velocity | 3 |
| (xiii) | 180° to 360°, Fall 50 mm with SHM construction | 4 |
| (xiv) | Complete Displacement Diagram | 3 |
| (xv) | Presentation | 5 |

Total = 60

Question C-5**MARKS****Assembly (14)**

- (i) Relative positioning of components10
- (ii) Draw Section4

Pole (10)

- (iii) Outline5
- (iv) Inner5

Lamp (6)

- (v) Outline4
- (vi) Inner2

Top (12)

- (vii) Locate centre points for arcs4
- (viii) Outline8

Solar panel (6)

- (ix) Outline6

Drawing Completion (7)

- (x) Hidden detail, Hatching and Centrelines ... (4,2,1)7
- (xi) **Presentation**5

Total = 60



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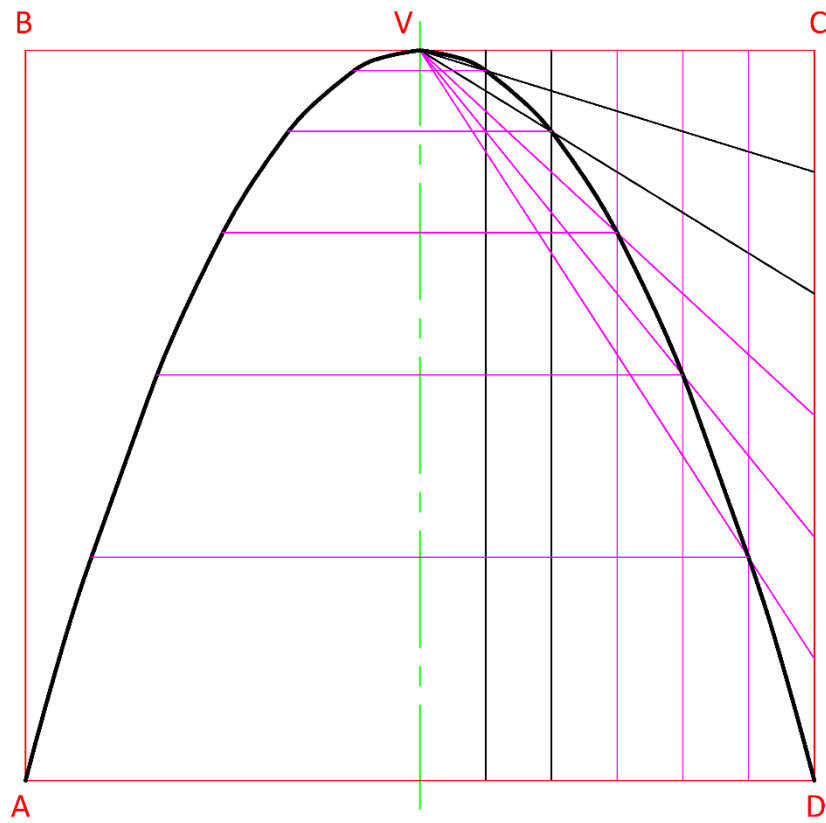
Design and Communication Graphics

Ordinary Level

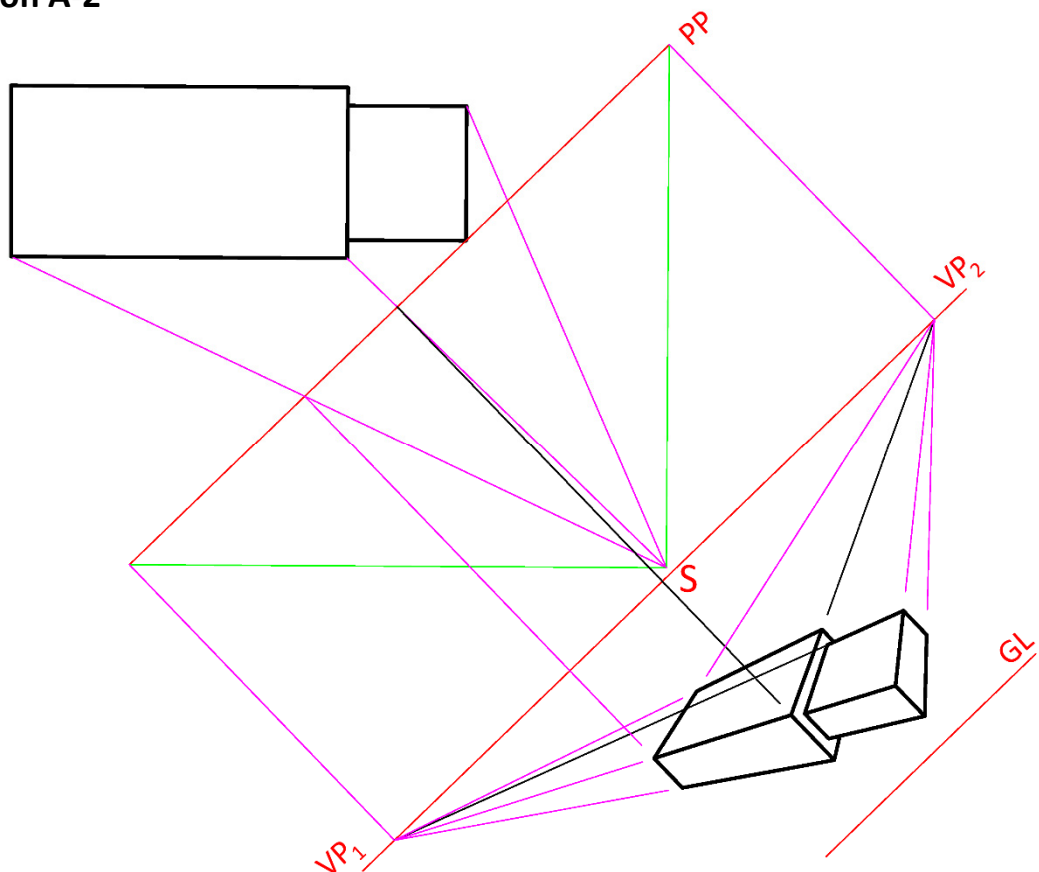
Sample Solutions

Note: Other valid solutions are acceptable and are marked accordingly.

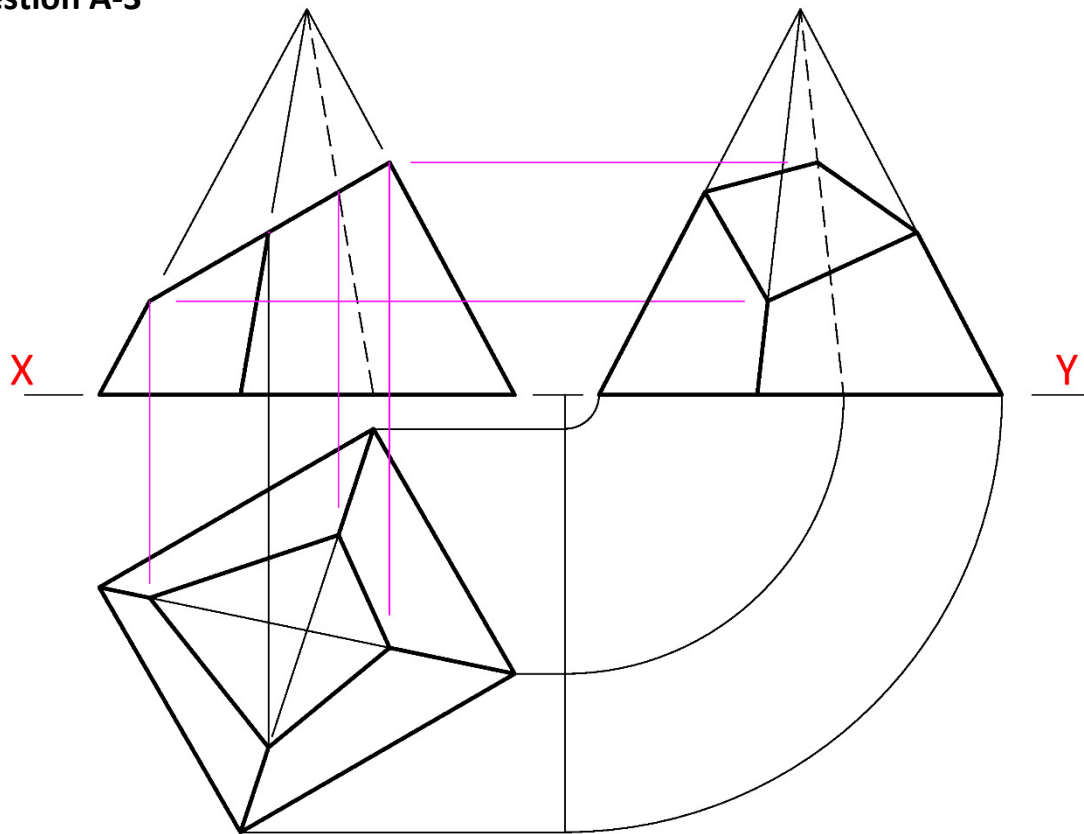
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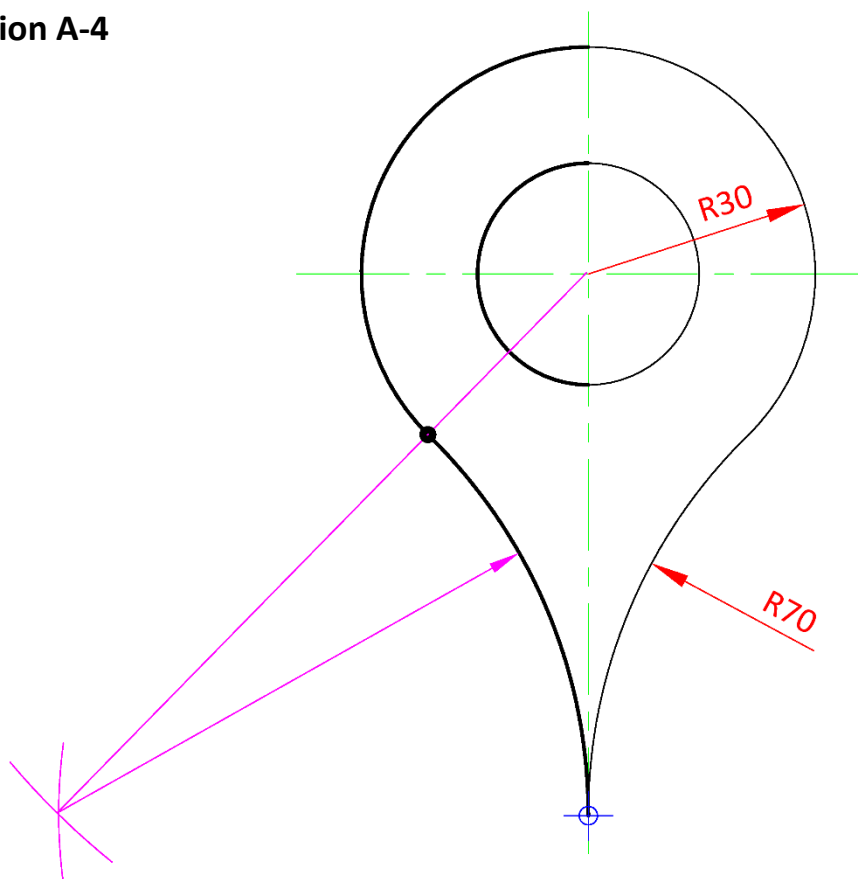
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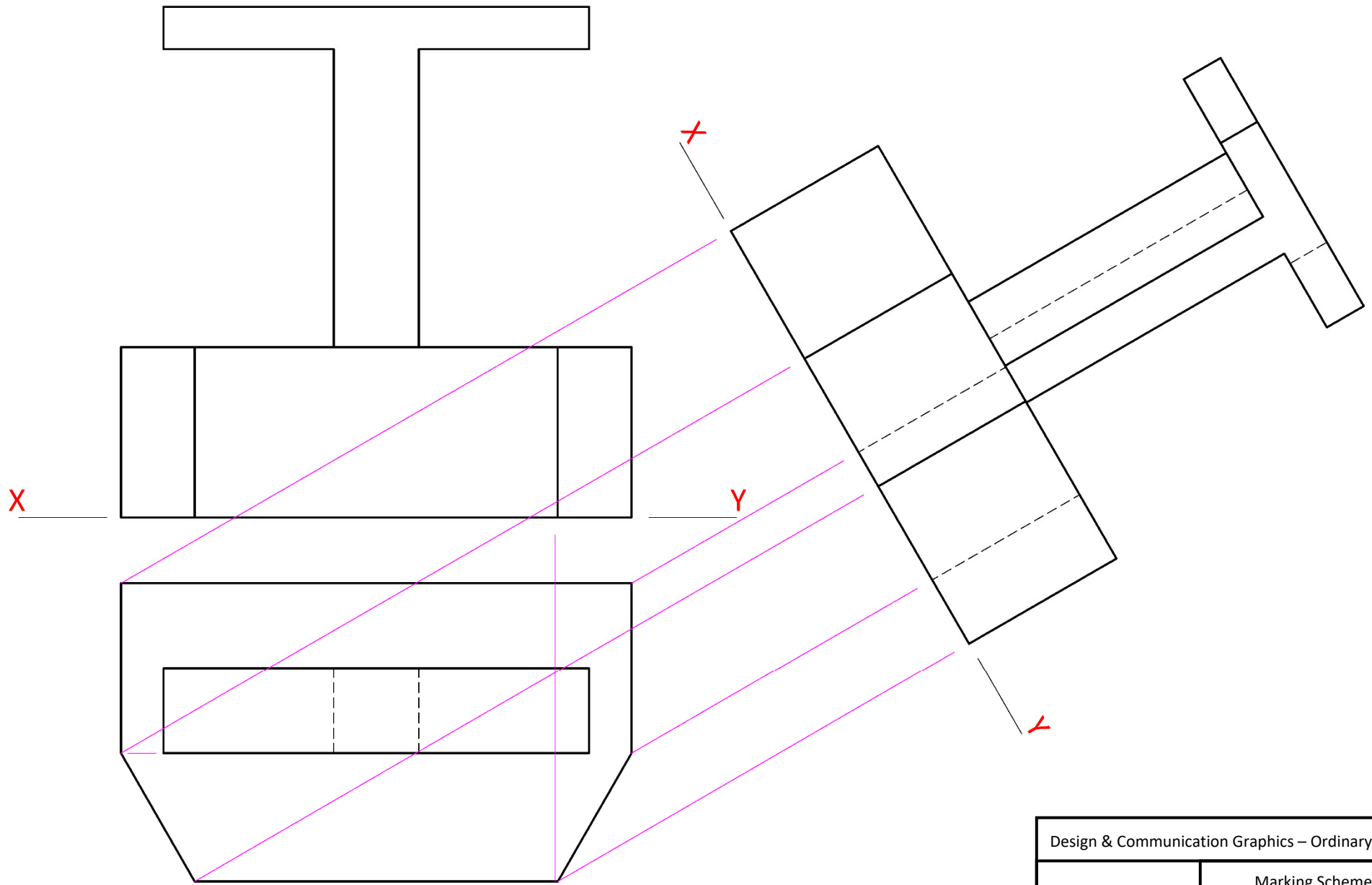


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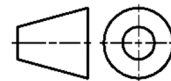


Question A-4





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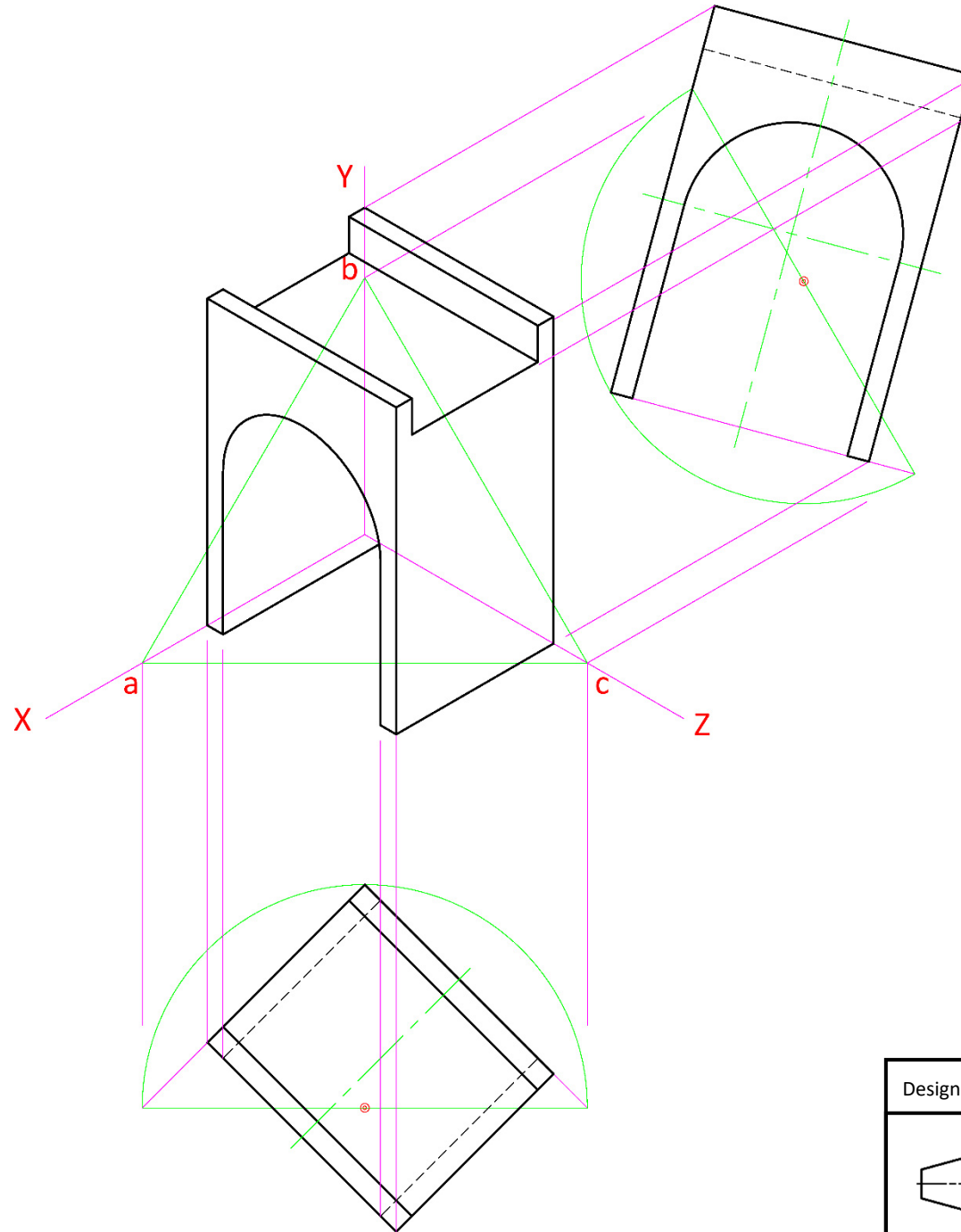


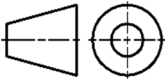
Marking Scheme

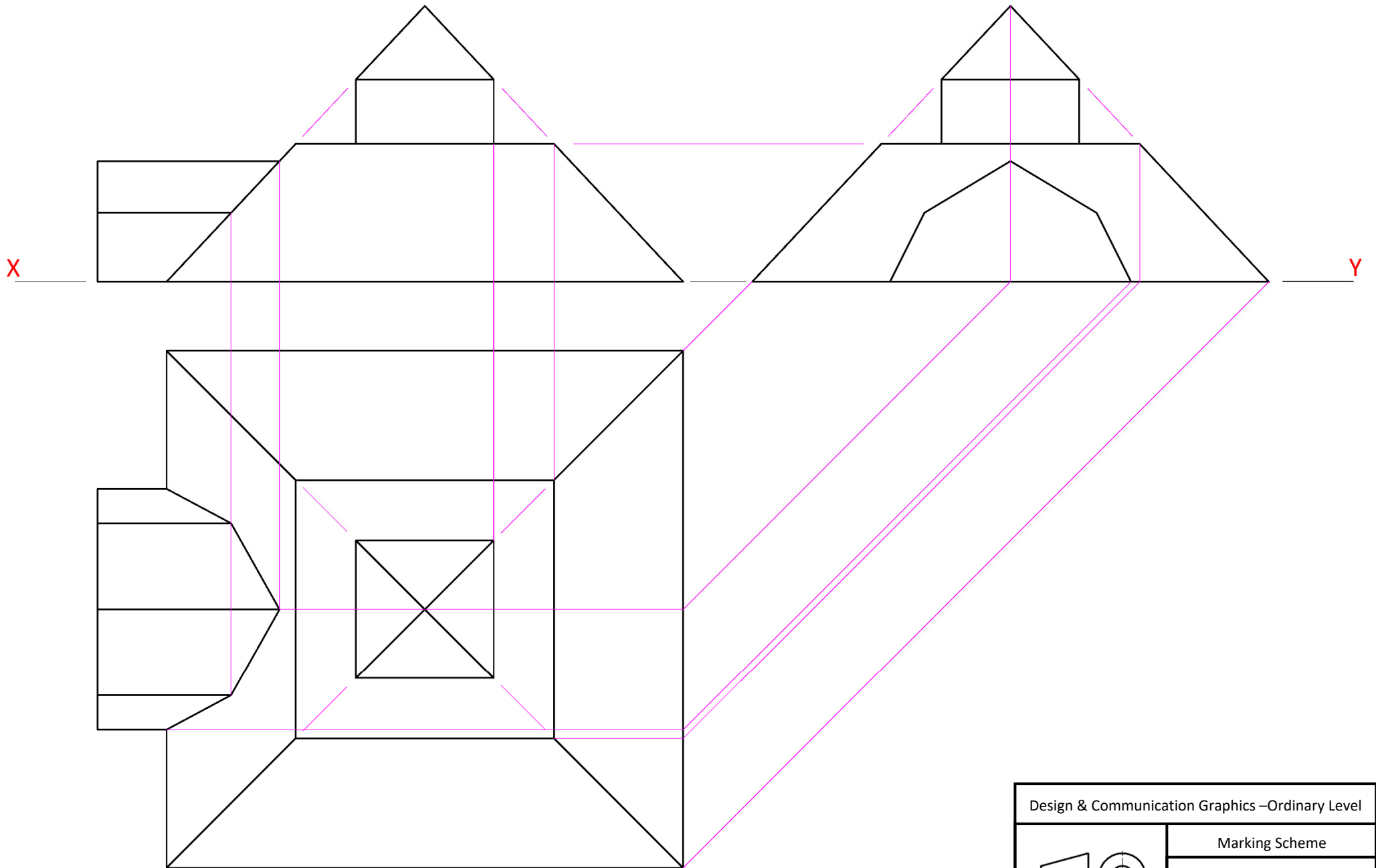
Question B-1

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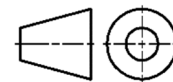
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Design & Communication Graphics – Ordinary Level			
	Marking Scheme		
	Question B-2		
	Scale: n/a	June 2024	



Design & Communication Graphics –Ordinary Level

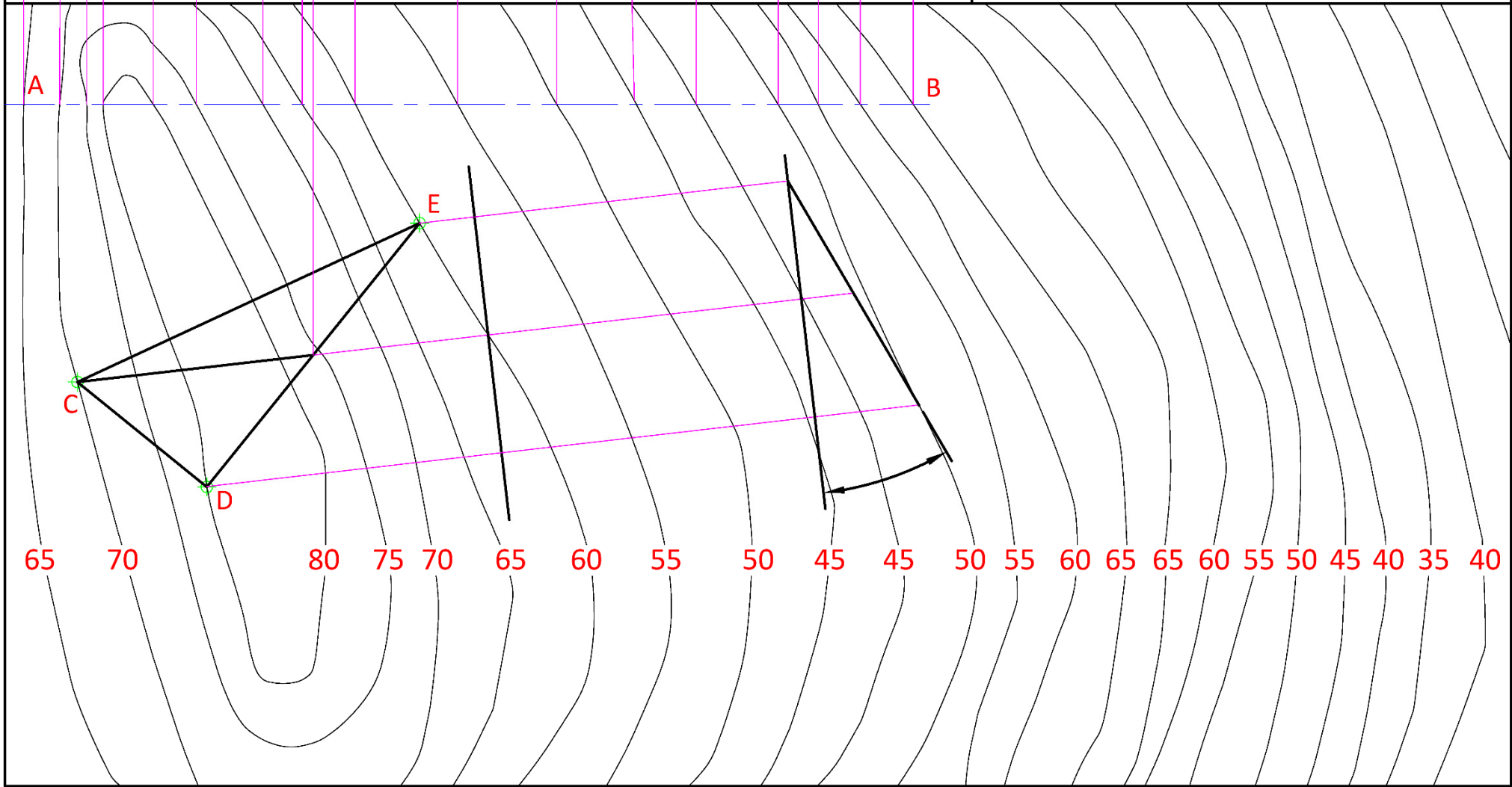
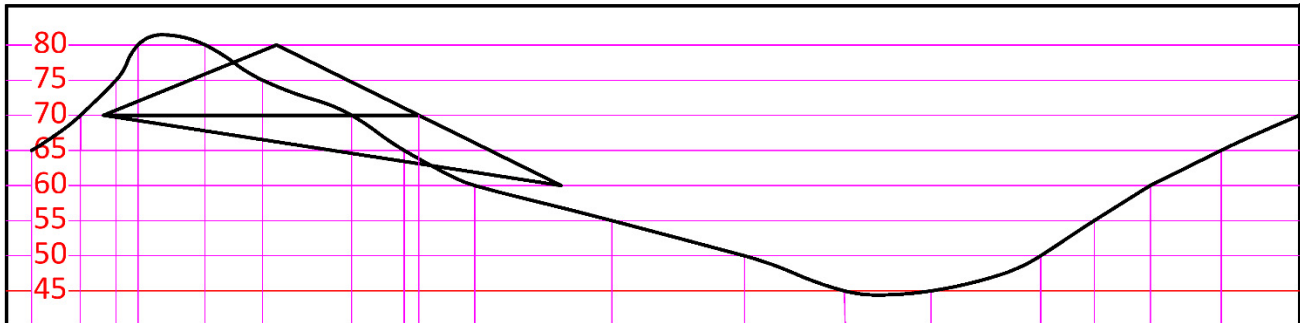
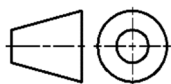


Marking Scheme

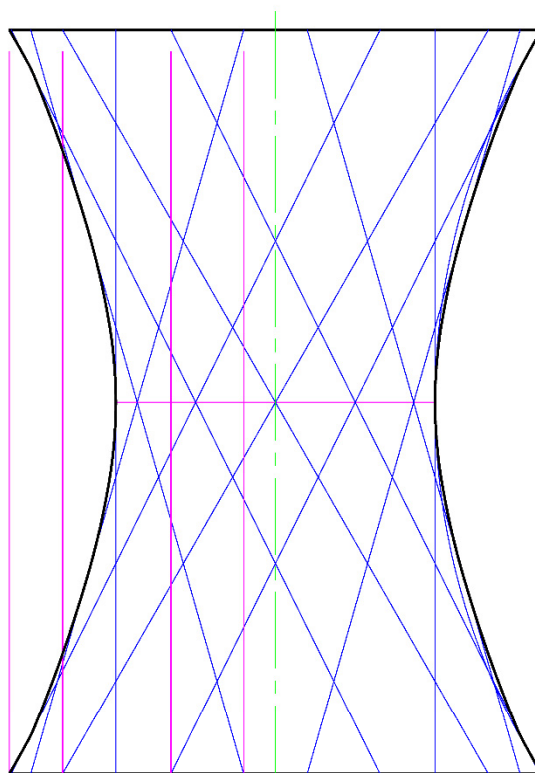
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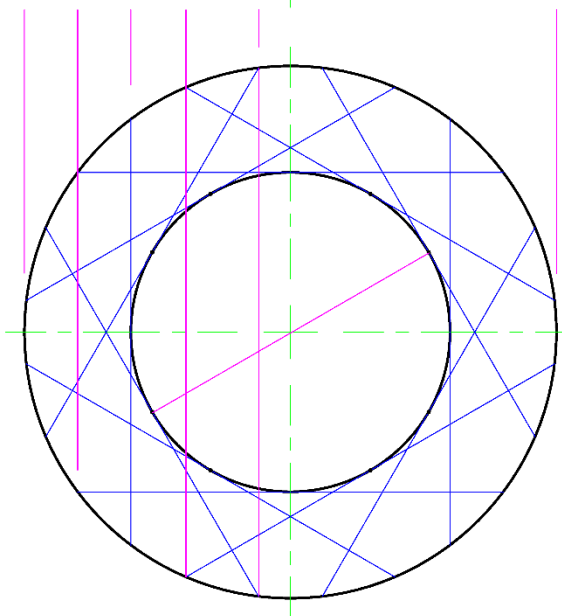
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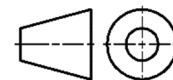
X



Y



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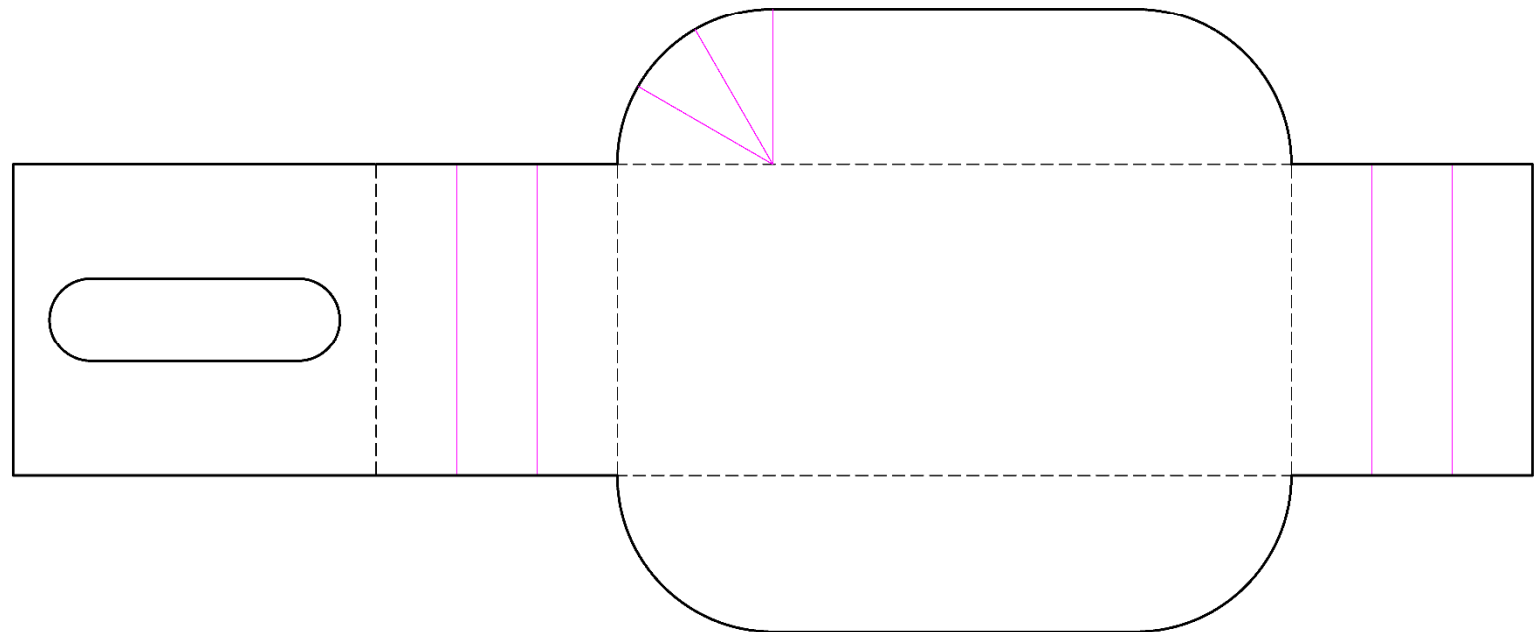
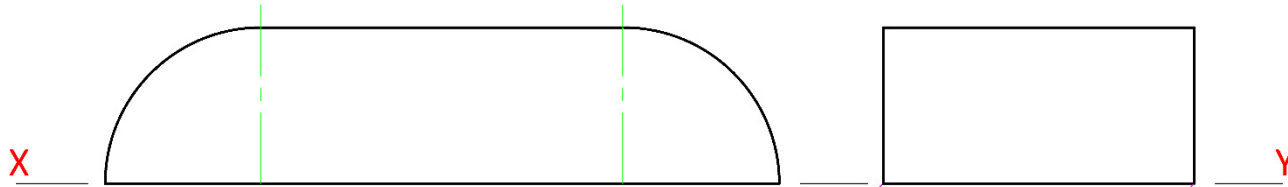
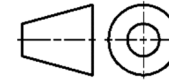


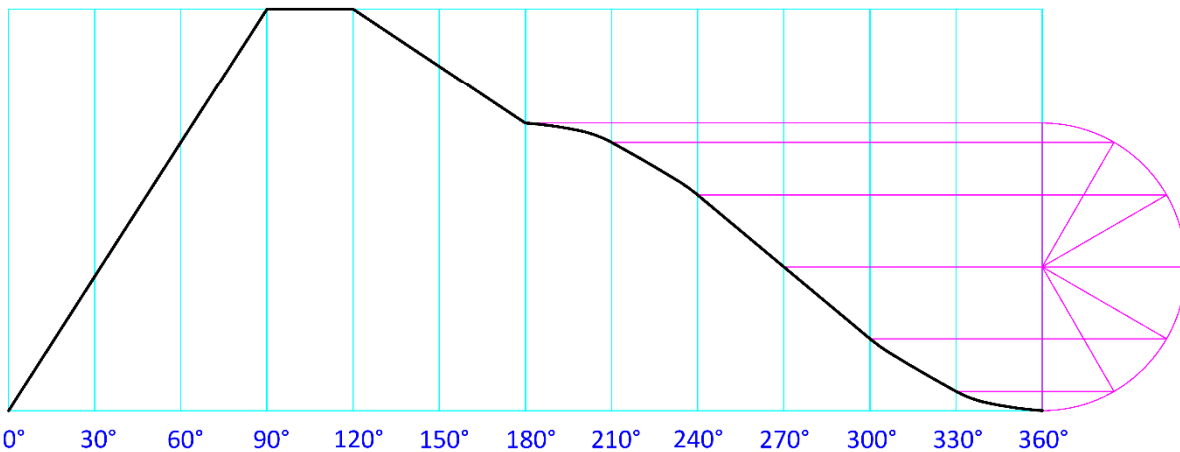
Marking Scheme

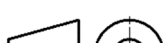
Question C-2

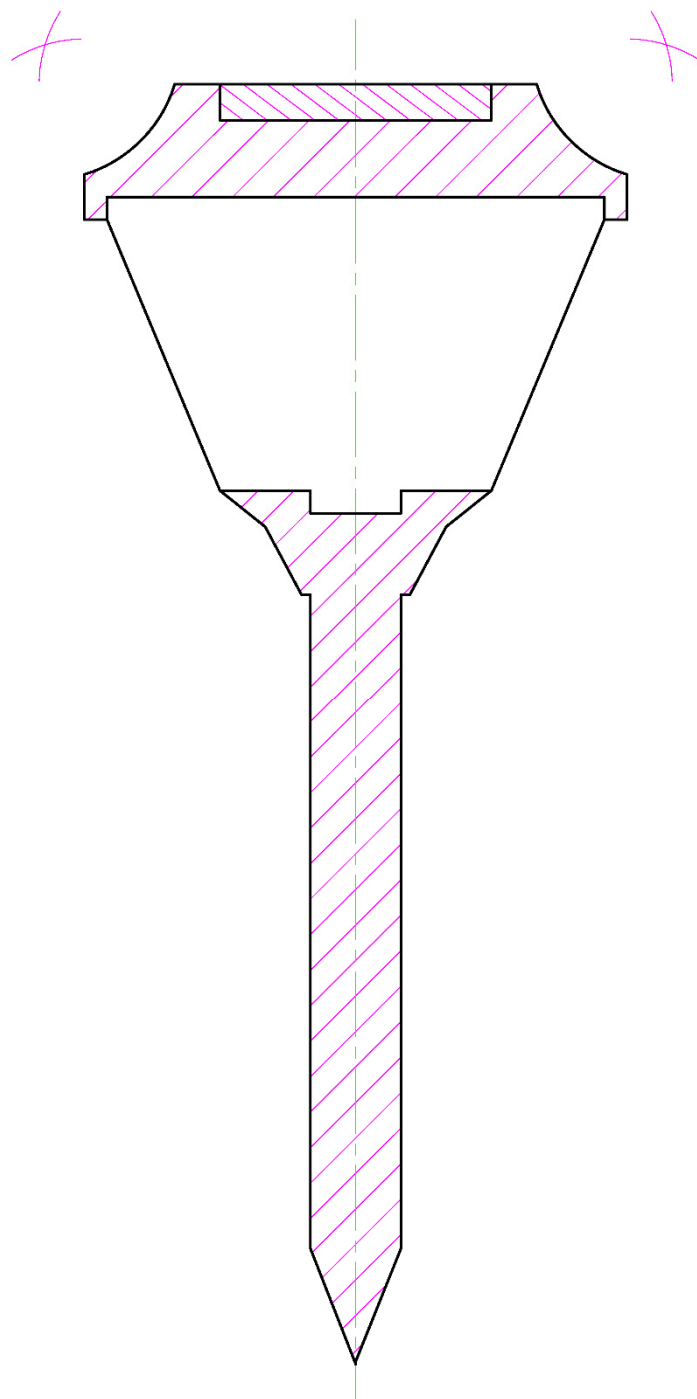
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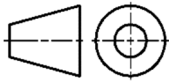
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Design & Communication Graphics – Ordinary Level	
	Marking Scheme
	Question C-4
	Scale: n/a June 2024



Design & Communication Graphics – Ordinary Level			
	Marking Scheme		
	Question C-5		
	Scale: n/a	June 2024	

Design and Communication Graphics
Student Assignment - Ordinary Level
Assessment Sheet 2024



Coimisiún na Scrúduithe Stáit
 State Examinations Commission

Candidate Examination No.

Output	Marking criteria				Marks
1	Design Research & Design Feature Comparison				
	Exploration of brief and presentation of existing artefacts in graphic format. Select 2 images and illustrate/explain the main design features. Insert the main dimensions. Compare and contrast the main design features of both using suitable freehand sketches and other presentation techniques.	30			
2	Freehand Graphical Representation				
	Proportion; Form/Volume; Use of Tone/Line for effective rendering; Detailed communication of main design features to include 3D presentation quality drawing; Layout & presentation	20			
3	SolidWorks Parts, Assembly, Drawing and eDrawing files				
	Adherence to required filing structure	35	4		
	Creation of a minimum of 3 Part files		6		
	Part models - Proficiency in Parametric CAD, including economy of design and design intent; Selection of most appropriate profiles; Sketches fully defined; Features renamed; Appropriate type of extrusions/end conditions used		14		
	Factor of difficulty/Design intent		3		
	Assembly - Creation of Assembly; Accuracy of parts to facilitate correct assembly; Correct mating of parts; Application of appropriate appearances		6		
	eDrawing of CAD model		2		
4	Hard Copy outputs from SolidWorks				
	Detailed orthographic views of the selected artefact; Section/Detail views where appropriate; pictorial view of the Assembly; Exploded view of the CAD model; Inclusion of main dimensions, notes and symbols; Appropriate scaling, layout and presentation to be considered	25			
5	Graphical exploration of design solutions				
	Exploration of theme/possible solution(s); Justification of chosen solution(s); Use of appropriate images/graphics; Effective layout and presentation of information combining images, sketches & annotations	20			
6	Presentation of Modification/Concept Design				
	Proportion; Form/Volume; Use of Tone/Line for effective rendering; Detailed communication of modified/concept design features; Layout and presentation	10			
7	Hard copy outputs from SolidWorks				
	CAD Model, factor of difficulty/design intent	20	10		
	Detailed orthographic views of the proposed solution; Section/Detail views where appropriate; Rendered pictorial view of the CAD model; Photorealistic images; Inclusion of main dimensions, notes and symbols; Appropriate scaling, layout and presentation to be considered		10		
Sub-total					
Marks deducted for pages in excess of maximum					
Assignment Total					

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