



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate 2025

Marking Scheme

Design and Communication Graphics

Higher 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.



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2025



Design and Communication Graphics

Higher Level

Marking Scheme

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

Question A-1**MARKS****(a) Complete the dimetric projection of the packaging (15)**

- (i) Completion of front lower surface 3
- (ii) Completion of front upper surface 5
- (iii) Determine the top surface 3
- (iv) Determine the side surfaces 4

(b) Draw the wrap around label in the axonometric view (5)

- (v) Projection of label to axonometric view 2
- (vi) Draw the label 3

Total = 20
Question A-2**MARKS****(a) Draw the elliptical outline of the pod (18)**

- (i) Location of second vertex on the ellipse 2
- (ii) Construction to locate points above the major axis 8
- (iii) Location of points below major axis 4
- (iv) Draw curve 4

(b) Determine and indicate the position of the second focal point of the ellipse (2)

- (v) Locate and indicate second focal point 2

Total = 20

Question A-3**MARKS****(a) Complete the elevation of the award (15)**

- (i) Traces of required cutting planes parallel to **HT** in plan **3**
- (ii) Projections of intersection with plan of **VT** to elevation **2**
- (iii) Locate points in elevation **6**
- (iv) Complete the elevation **3**
- (v) Hidden detail **1**

(b) Determine the true angle between the VT and HT (5)

- (vi) Projections to determine the true angle between the **VT** and **HT** **5**

Total = 20**Question A-4****MARKS****(a) Complete the elevation (13)**

- (i) Location of penetration point on LHS **2**
- (ii) Location of penetration point on RHS (surface **S**)..... **2**
- (iii) Location of turning points in elevation **2**
- (iv) Use of appropriate method to determine point on front surface **2**
- (v) Location of point on front surface **2**
- (vi) Complete the elevation **3**

(b) Determine the true shape of surface S (7)

- (vii) Use of appropriate method to determine the true shape of surface **S**..... **2**
- (viii) Location of points on the true shape of surface **S** **2**
- (ix) Draw the true shape of surface **S**..... **3**

Total = 20

Question B-1

	MARKS
(a) Draw the given elevation (16)	
(i) Draw rectangular outline of parabola	3
(ii) Construction to determine points on parabola ABC in elevation.....	7
(iii) Draw parabolic curve ABC	3
(iv) Draw the support cables	3
(b) Project plan and end view of bridge in closed position (29)	
(v) Locate centreline AC in plan	3
(vi) Establish centre point of arc ADC in plan	3
(vii) Draw circular arc ADC	3
(viii) Determine end view of ADC.....	2
(ix) Complete outline of end view	2
(x) Projection of curve ABC to plan	6
(xi) Draw curve ABC in plan	3
(xii) Complete support cables in plan.....	2
(xiii) Complete end view of support cables.....	5
(c) Draw end view of rotated bridge and projection of elevation (15)	
(xiv) Draw end view of the bridge in rotated position.....	3
(xv) Establish the cables in the rotated position.....	3
(xvi) Projection of endpoints of cables on ABC in rotated position to elevation	3
(xvii) Draw elevation of curve ABC in rotated position	3
(xviii) Draw elevation of curve ADC in rotated position	3

Total = 60

Question B-2**MARKS****(a) Elevation and plan of intersecting planes ABC, BCD, and CDE (16)**

- (i) Use given coordinates to draw elevation of ABC, BCD, and CDE 8
- (ii) Draw the plan of the planes ABC, BCD, and CDE 8

(b) Dihedral Angle between surfaces ABC and BCD (17)

- (iii) X_1Y_1 parallel to line of intersection BC 4
- (iv) Projection of planes and line of intersection on new X_1Y_1 4
- (v) New X_2Y_2 perpendicular to line of intersection BC 4
- (vi) Projection of planes ABC and BCD as lines and determine dihedral angle 5

(c) True shape of surface CDE (17)

- (vii) Projections of horizontal line on CDE 3
- (viii) X_1Y_1 perpendicular to plan of correct strike line 3
- (ix) Projection of plane CDE to auxiliary view 3
- (x) X_2Y_2 line parallel to edge view of surface CDE 3
- (xi) Projection of true shape of surface CDE to auxiliary view 5

(d) Determine horizontal and vertical traces of plane ABC (10)

- (xii) Establish a second point on the horizontal trace 3
- (xiii) Draw the horizontal trace 2
- (xiv) Determine a second point on the vertical trace 3
- (xv) Draw the vertical trace 2

Total = 60

Question B-3**MARKS****(a) Draw given plan (9)**

(i) Draw given plan of kiosk 9

(b) Draw perspective of Kiosk (46)

(ii) Position spectator and plan of picture plane 4

(iii) Plan of vanishing points 4

(iv) Ground line, horizon line, vanishing points in elevation 4

(v) Establish corner **A** in perspective view 1

(vi) Perspective of base lines of structure 4

(vii) Apply heights above corner **A** 2

(viii) Complete perspective of the outline of the kiosk 7

(ix) Establish heights for washing windows 6

(x) Complete perspective of washing windows 5

(xi) Use of AVP to determine perspective view of sloping surface **B** 7

(xii) Complete perspective drawing of the kiosk 2

(c) Determine and indicate height of point C (5)

(xiii) Establish height for point **C** 3

(xiv) Correct height of point **C** 2

Total = 60

Question C-1**MARKS****(a) Earthworks on roadway (40)****Earthworks between A and B (Level) – Embankment**

- (i) Draw parallel lines at 7.5 mm intervals 4
- (ii) Identify intersections with contours and draw curves 4

Earthworks between A and B (Level) – Cutting

- (iii) Draw parallel lines at 5 mm intervals (to corner) 4
- (iv) Identify intersections with contours and draw curve 4
- (v) Draw parallel lines at 5 mm intervals (from corner to B) 4
- (vi) Identify intersections with contours and draw curve 4

Earthworks between B and C (Falling) - Embankment

- (vii) Establish 70 m height on roadway 4
- (viii) Draw required 7.5 mm arc at B and draw tangent 4
- (ix) Draw parallel lines at 7.5 mm intervals 4
- (x) Identify intersections with contours and draw curve 4

(b) Strike, Dip and Thickness of stratum (20)

- (xi) Draw line from S_h parallel to $R_f S_f$ (or S_f parallel to $R_h S_h$) in elevation 2
- (xii) Draw line from S_h parallel to $R_f S_f$ (or S_f parallel to $R_h S_h$) in plan 2
- (xiii) Draw horizontal line on either plane in elevation 2
- (xiv) Determine the strike line in plan 3
- (xv) $X_1 Y_1$ line perpendicular to strike line 3
- (xvi) Establish required dip angle and thickness of stratum 8

Total = 60

Question C-2**MARKS****(a) Draw given plan and elevation (39)**

- (i) Draw base circle in plan 2
- (ii) Draw base and top circles in elevation 3
- (iii) Location of throat circle in plan and elevation 5
- (iv) Construction to determine points on one branch of hyperbola in elevation 8
- (v) Determination of points on second branch in elevation 4
- (vi) Draw 30° cut in elevation 2
- (vii) Draw hyperbolic curves 5
- (viii) Determine end point on top cut curve in plan 2
- (ix) Determine additional points on top cut curve in plan 5
- (x) Draw the top cut curve in plan 3

(b) Project end view (15)

- (xi) Draw base circle in end view 2
- (xii) Determine points on outline hyperbola curves 4
- (xiii) Draw hyperbolic curves 2
- (xiv) Determine points on top cut surface 4
- (xv) Draw top cut curve 3

(c) Directrix and focal point (6)

- (xvi) Construction to determine required directrix 3
- (xvii) Construction to determine required focal point 3

Total = 60

Question C-3**MARKS****(a) Draw the given plan and elevation (24)**

- (i) Draw octagonal outline in plan..... 2
- (ii) Draw the elevation of the conical base, outline of the body, and top of the jug .. 6
- (iii) Draw the elevation of the handle and spout..... 4
- (iv) Project plan of the conical base, body, and top 6
- (v) Project plan of the handle and spout 4
- (vi) Hidden detail in plan 1
- (vii) Complete the elevation of the main body 1

(b) Dihedral angle between surfaces A and B (16)

- (viii) X_1Y_1 parallel to line of intersection 4
- (ix) Projection of surfaces **A** and **B** and line of intersection on new X_1Y_1 4
- (x) New X_2Y_2 perpendicular to line of intersection 4
- (xi) Projection of surfaces **A** and **B** as lines and determine dihedral angle 4

(c) Surface development of conical surface C (10)

- (xii) Location of apex on development (to ensure accuracy) 1
- (xiii) Transfer longest generator length to surface development 2
- (xiv) Establish 12 elements in surface development..... 4
- (xv) Transfer cut generator length to surface development..... 1
- (xvi) Complete the surface development..... 2

(d) Surface development of the lid (10)

- (xvii) Establish true length of lid edge 2
- (xviii) Correct construction to determine surface development 4
- (xix) Complete the surface development..... 4

Total = 60

Question C-4**MARKS****(a) Displacement Diagram and Cam Profile (35)**

- | | | |
|--------|--|---|
| (i) | Draw camshaft | 1 |
| (ii) | Establish 'nearest approach' on diagram of cam | 2 |
| (iii) | Horizontal divisions on displacement diagram | 3 |
| (iv) | Construction to determine U.A.R. on disp. diag. (min. 7 incl. end points)..... | 6 |
| (v) | Draw Uniform Velocity on displacement diagram | 3 |
| (vi) | Construction to determine S.H.M. on displacement diagram..... | 6 |
| (vii) | Divide circle into 12 equal parts (30° divisions)..... | 3 |
| (viii) | Required intermediate divisions (U.A.R.) (20° divisions)..... | 2 |
| (ix) | Transfer of heights from displacement diagram to cam diagram..... | 6 |
| (x) | Complete diagram of cam..... | 3 |

(b) Line Diagram and Locus of point P for one revolution (25)

- | | | |
|--------|---|---|
| (xi) | Draw the given diagram (Points A, B, C, D, E, & P) | 8 |
| (xii) | Division of circle into equal parts (12 minimum) | 3 |
| (xiii) | Draw arc with centre B and radius BC | 3 |
| (xiv) | Use of points established at (xii) & arc at (xiii) to determine points on locus | 6 |
| (xv) | Establish turning points of the locus | 2 |
| (xvi) | Draw required locus | 3 |

Total = 60

Question C-5**MARKS****Sectional elevation (60)****Assembly (7)**

(i) Relative positioning of main components 7

End Cutter (7)

(ii) Complete outline of main body 2

(iii) Inner detail of the main body 5

Right-Hand Cap (7)

(iv) Outline of the right-hand cap 5

(v) Inner detail of the right-hand cap 2

Plunger Guide Bars (3)

(vi) Outline of the plunger guide bars 3

Potato Guide Bar (4)

(vii) Outline of the potato guide bars 4

Sliding Plunger (9)

(viii) Outline of the main body of the plunger 5

(ix) Detail of the top and bottom guide arms 4

Handle (6)

(x) Outline of handle 4

(xi) Inner detail of handle 2

Link Arm (5)

(xii) Outline of link arm 2

(xiii) Inner detail of link arm 3

Washers (3)

(xiv) Representation of the washers 3

M4 x 16 Set Screws (3)

(xv) Representation of the set screws 3

Completion of drawing (6)

(xvi) Presentation, hatching and centrelines 6

Total = 60



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2025



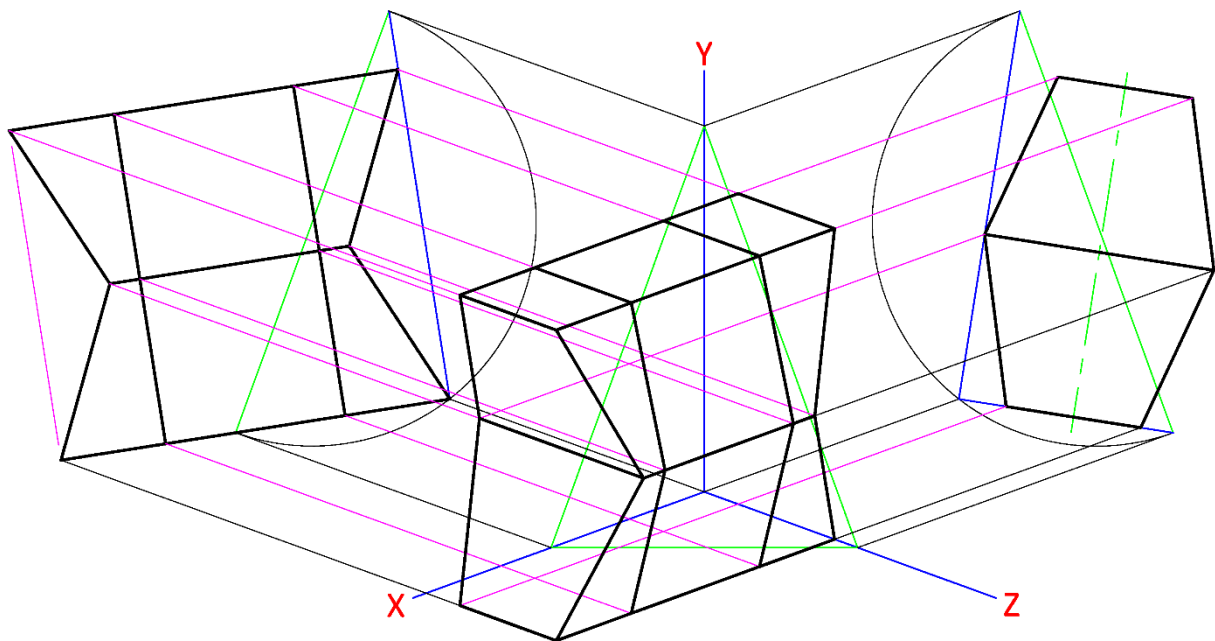
Design and Communication Graphics

Higher Level

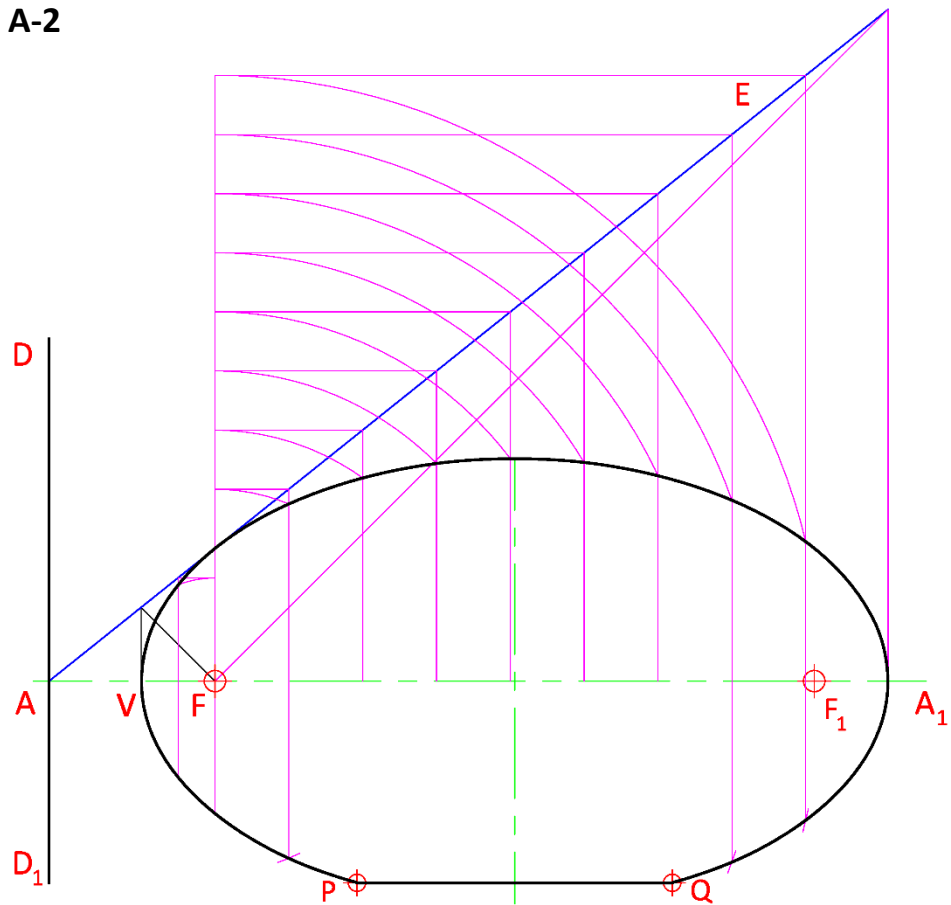
Sample Solutions

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

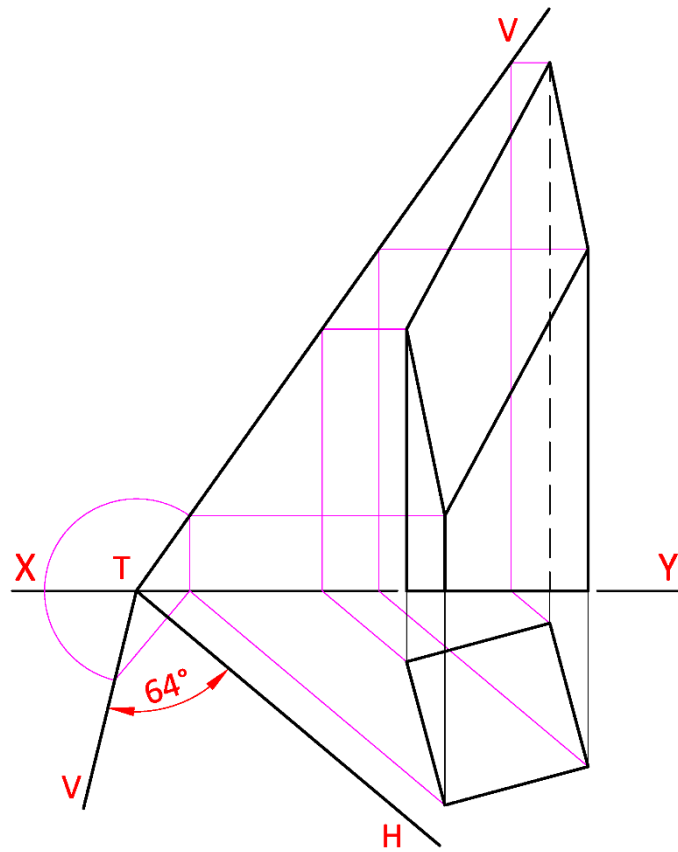
Question A-1



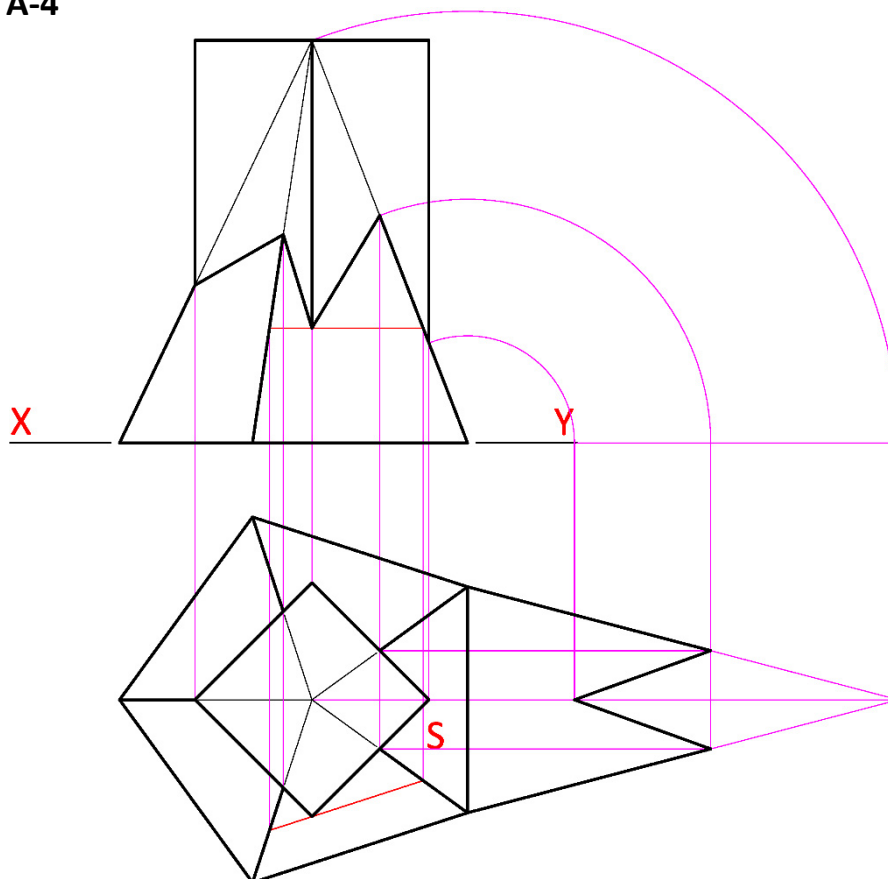
Question A-2

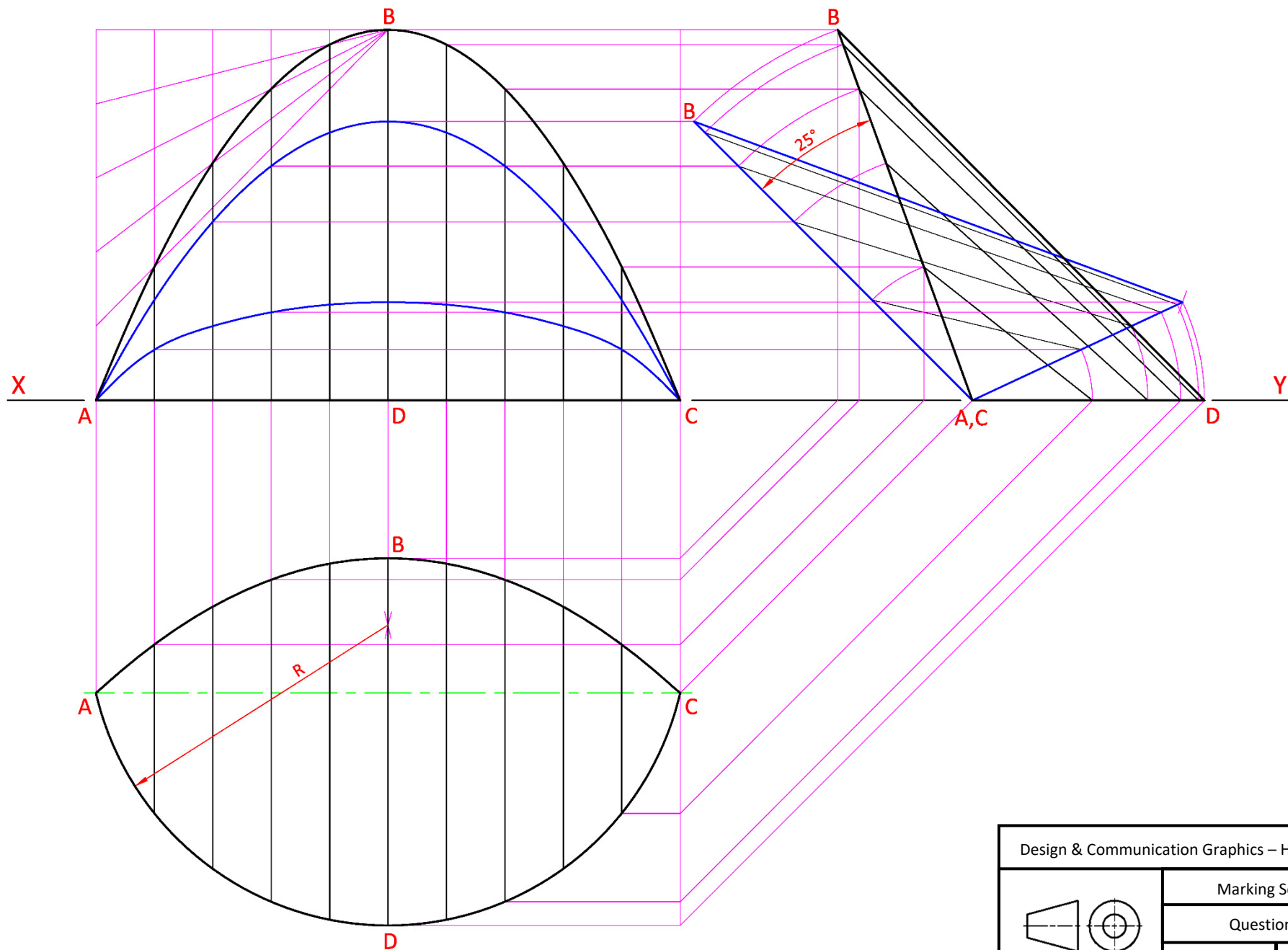


Question A-3



Question A-4





Design & Communication Graphics – Higher Level

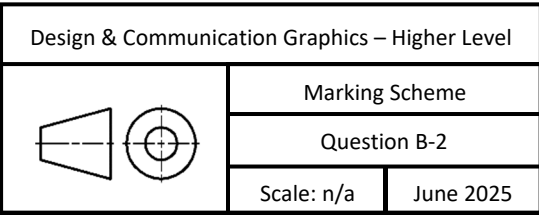


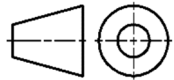
Marking Scheme

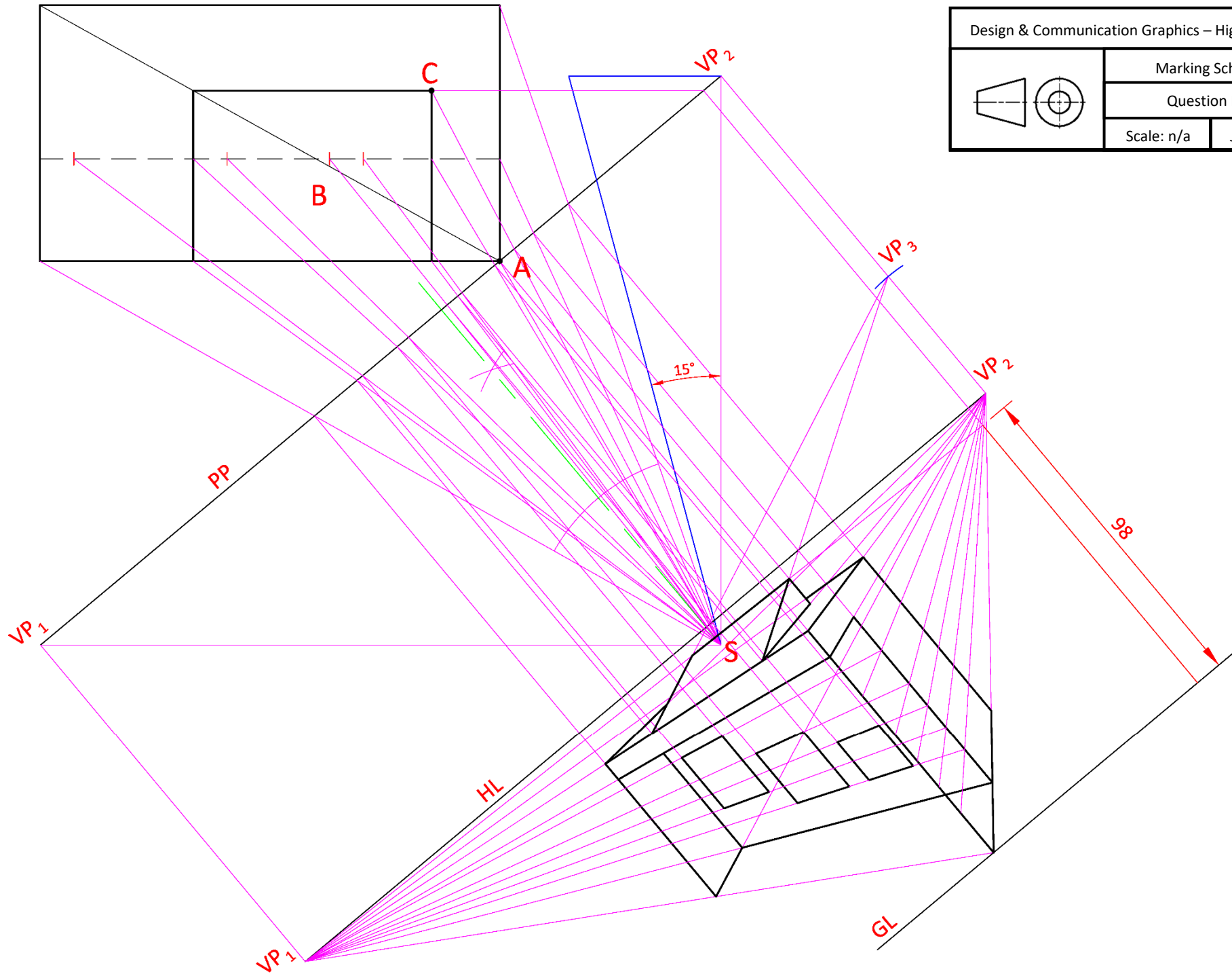
Question B-1

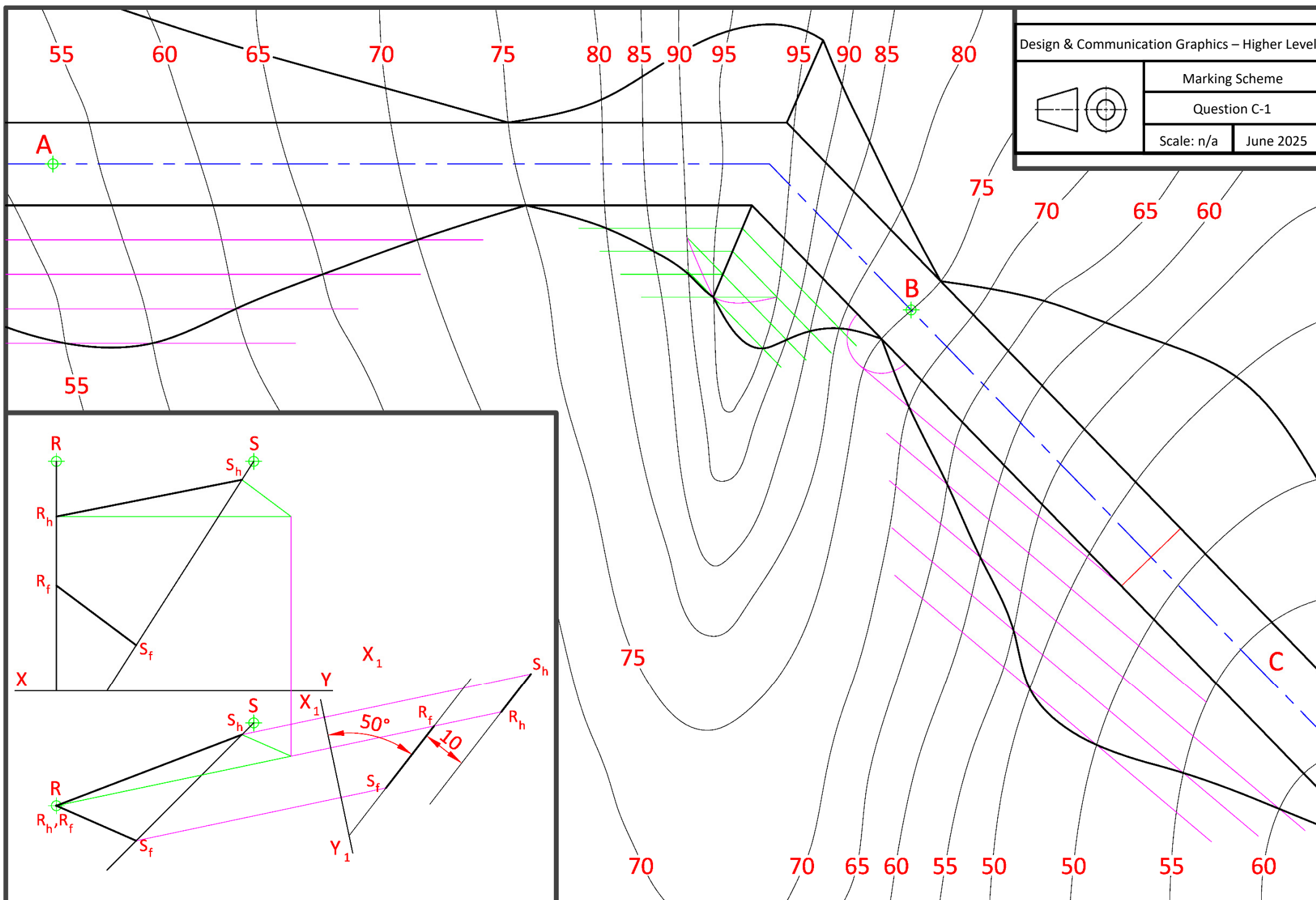
Scale: n/a

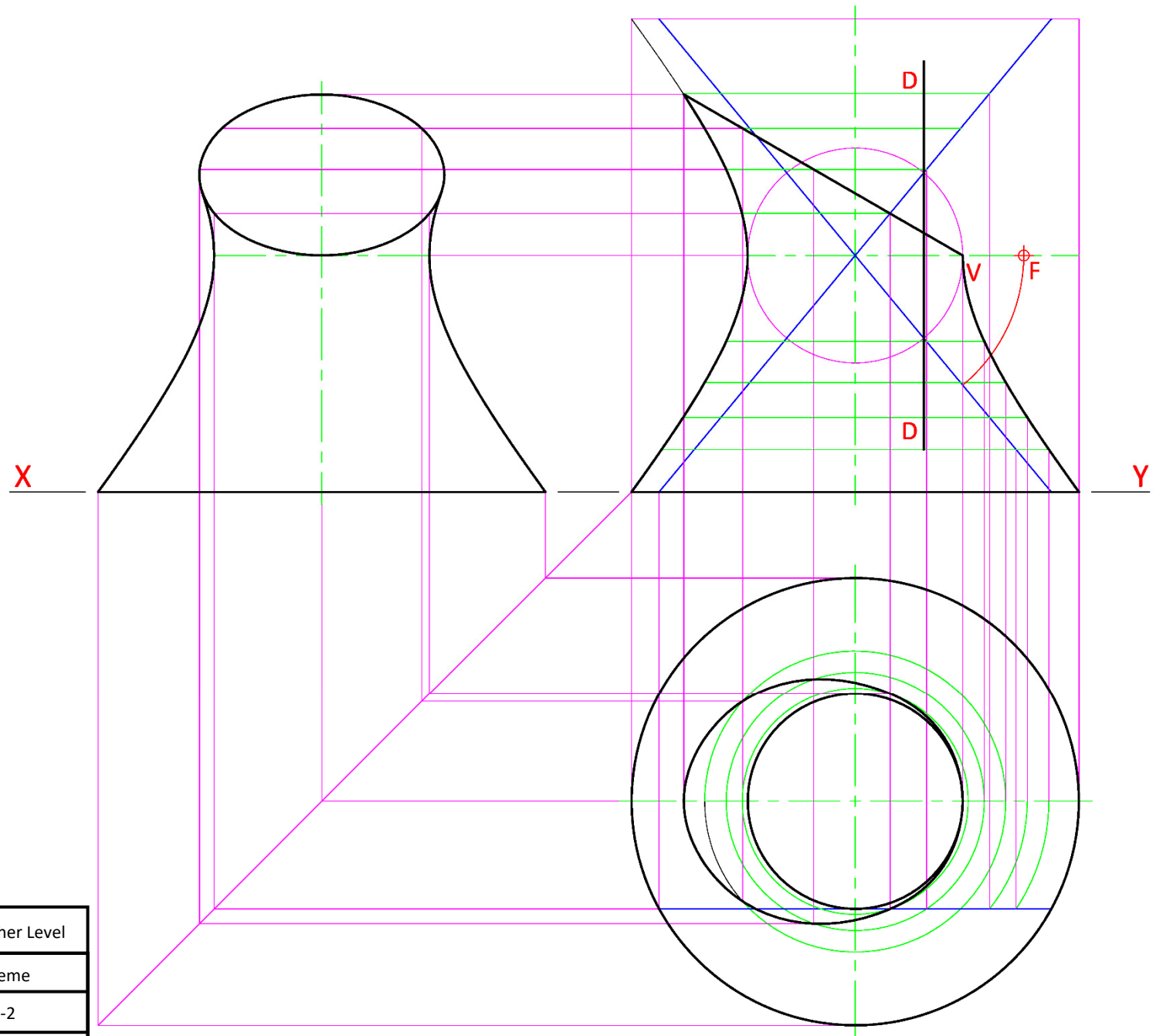
June 2025



Design & Communication Graphics – Higher Level		
	Marking Scheme	
	Question B-3	
	Scale: n/a	June 2025







Design & Communication Graphics – Higher Level

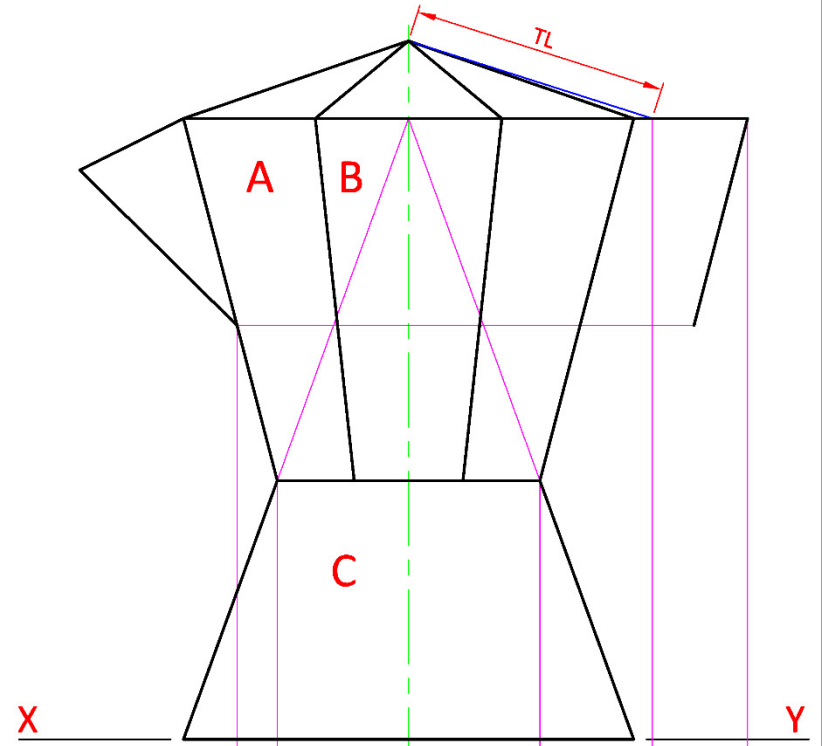
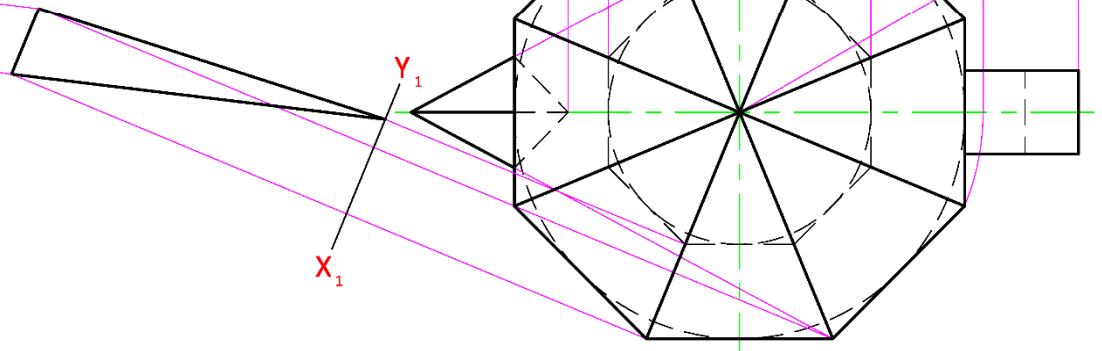
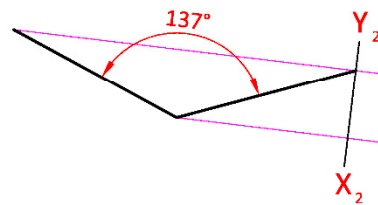
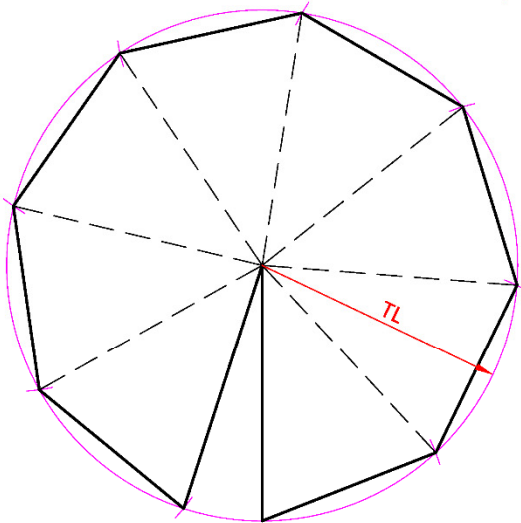
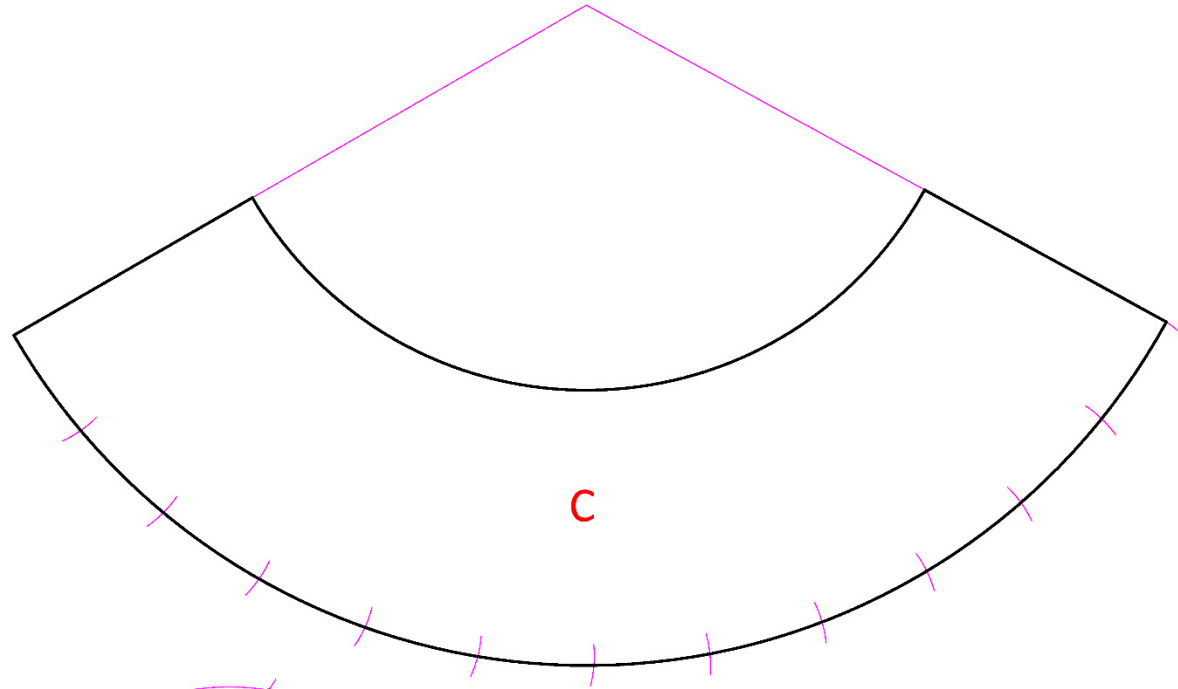


Marking Scheme

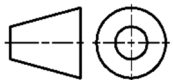
Question C-2

Scale: n/a

June 2025



Design & Communication Graphics – Higher Level

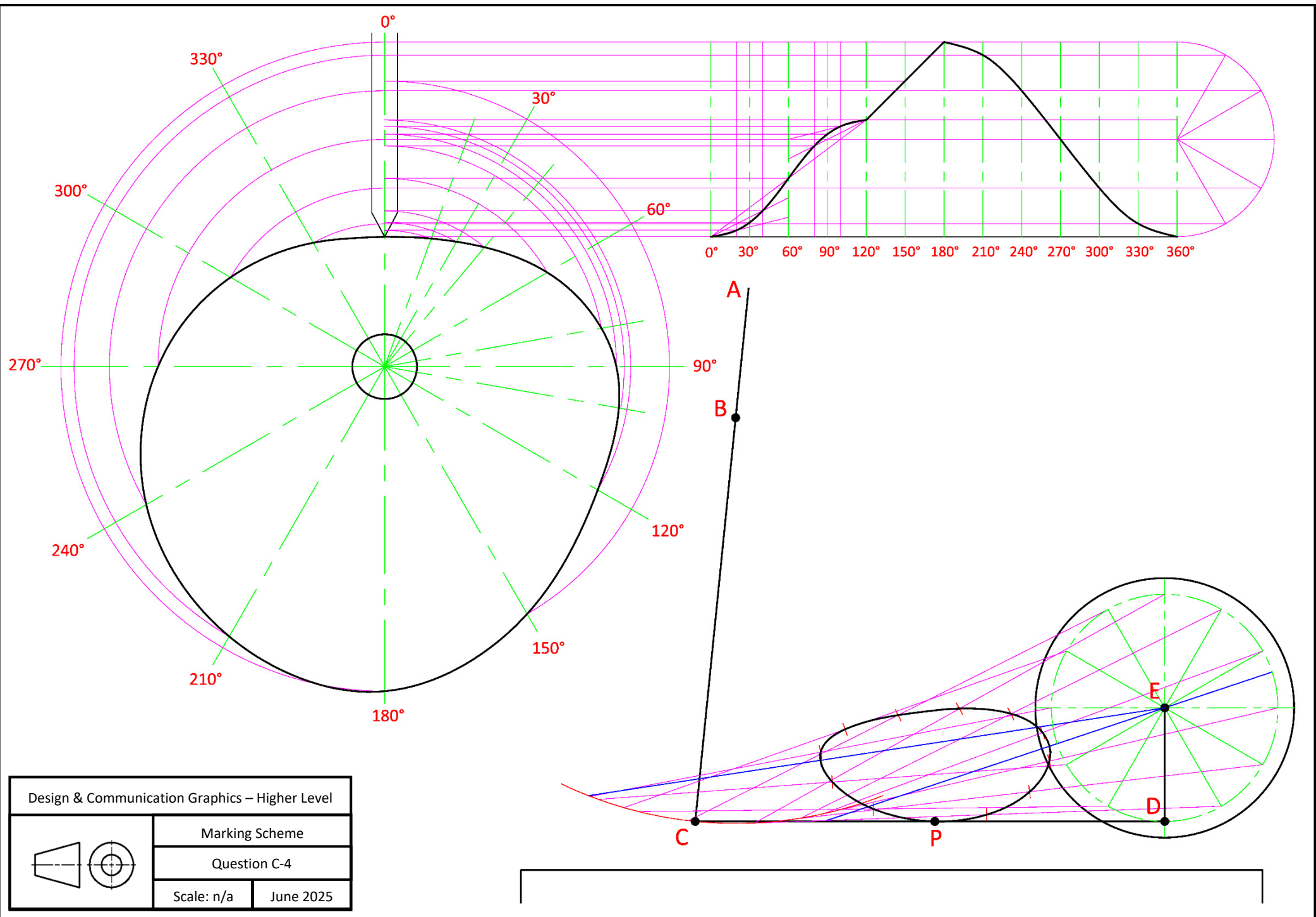


Marking Scheme

Question C-3

Scale: n/a

June 2025



Design & Communication Graphics – Higher Level

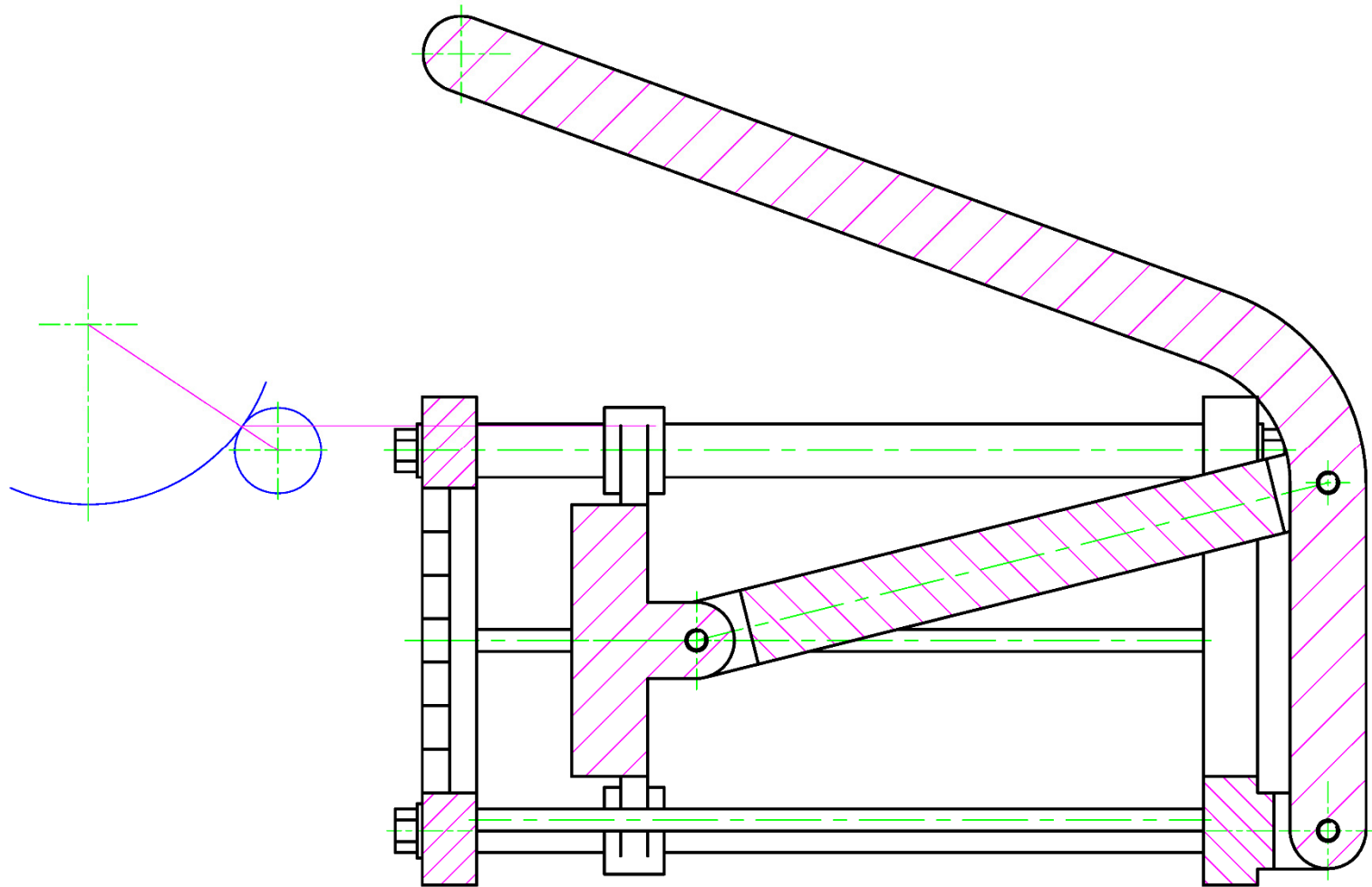


Marking Scheme

Question C-4

Scale: n/a

June 2025



Design & Communication Graphics – Higher Level



Marking Scheme

Question C-5

Scale: n/a

June 2025

Design and Communication Graphics
Student Assignment - Higher Level
Assessment Sheet 2025



Coimisiún na Scrúduithe Stáit
 State Examinations Commission

Candidate Examination No.

No.	Marking criteria				Marks			
1	Design Research & Design Feature Comparison				30			
	Exploration of brief; Presentation of existing artefacts in graphic format using primary and secondary research; Selection of two appropriate artefacts; Illustrate and explain the main design features and dimensions of each; Compare and contrast the main design features; Effective use of freehand sketches and other presentation techniques; Effective layout and presentation of information.							
2	Freehand Graphical Representation				20			
	Detailed graphical presentation of the selected artefact; Rendered freehand presentation drawing in 3D format; Exploration of the underlying geometry and main design features through various views; Proportion/Form/Volume; Use of Tone/Line for effective rendering; Effective layout and presentation.							
3	SolidWorks Parts, Assembly, Drawing and eDrawing file					35		
	Adherence to required filing structure				4			
	Creation of a minimum of 5 Part files				2			
	Part models - Proficiency in the modelling of the SolidWorks parts; Selection of appropriate sketches and profiles; Use of relations; Sketches fully defined; Selection of appropriate features; Use of end conditions; Features renamed; Economy of design.				15			
	Design intent/Factor of difficulty demonstrated in SolidWorks modelling.				5			
	Assembly - Creation of Assembly from the parts modelled; Accuracy of parts to facilitate correct assembly; Correct and appropriate mating of parts; Application of appropriate appearances/materials/textures or colours.				7			
	eDrawing of CAD model assembly				2			
4	Hardcopy outputs from SolidWorks					15		
	Detailed orthographic views of the assembled artefact; Inclusion of main dimensions, notes and symbols; Rendered pictorial view of CAD Assembly; Exploded view of CAD Assembly; Section/Detail view(s) where appropriate; Effective layout scaling and presentation of Drawing sheet(s).							
5	Graphical exploration of design solution					25		
	Analysis and exploration of possible modification(s) or concept design; Graphical development and progression of a chosen solution; Justification of the chosen solution; Use of appropriate sketches, images, graphics and annotations; Effective layout and presentation.							
6	Presentation of Modification/Concept Design					10		
	Detailed graphical presentation of the selected design Modification(s) / Concept Design; Rendered freehand presentation drawing in 3D format; Proportion/Form/Volume; Use of Tone/Line for effective rendering; Effective layout and presentation.							
7	SolidWorks files and Hardcopy output					25		
	Proficiency in the modelling of the SolidWorks part(s)/Assembly design solution; Design intent/factor of difficulty demonstrated in SolidWorks modelling.				13			
	Detailed orthographic views of the design solution; Inclusion of main dimensions, notes and symbols; Rendered pictorial view of the Assembly; Photorealistic image; Effective layout, scaling and presentation of Drawing sheet(s).				12			
Sub-total								
Marks deducted for pages in excess of maximum								
Student Assignment Total								

Blank Page

Blank Page

