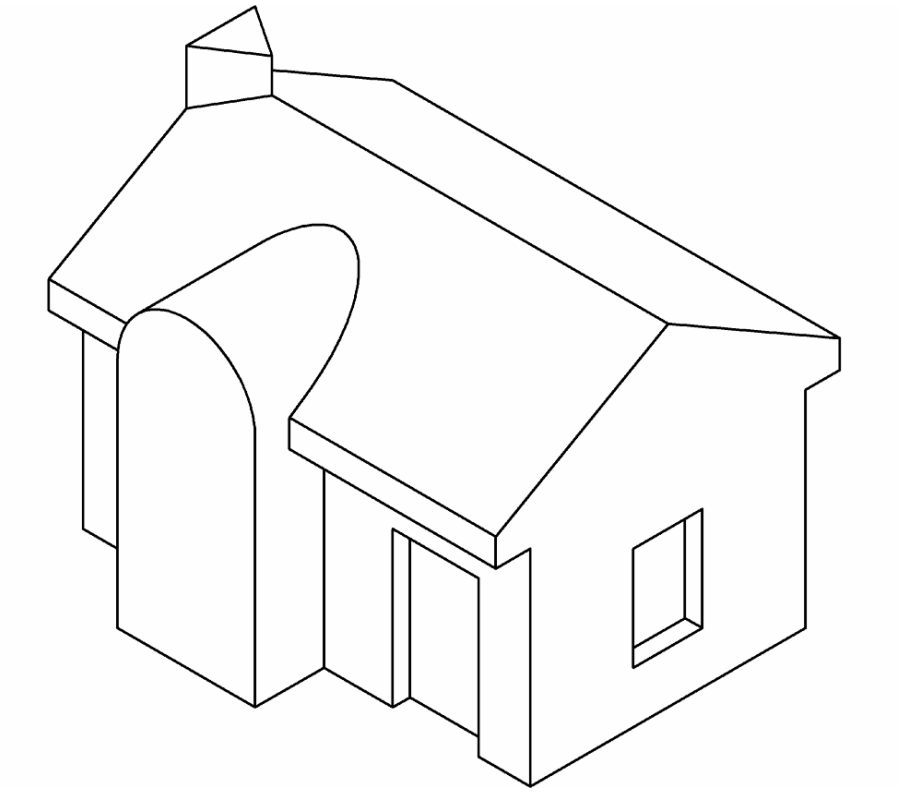
Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination 2007

Grafaic Theicniúil



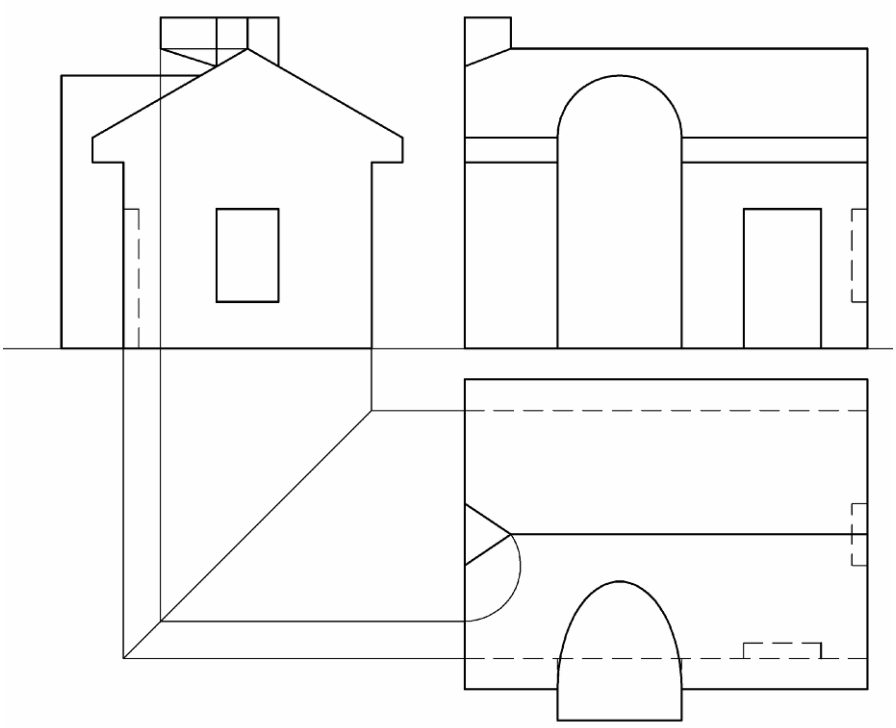
Ardleibhéal
Scéim Mharcála

Roinn A agus B

SECTION A

Q1	12	Four diagrams, 3 marks for each correct label.		
Q2	12	3 lines, 4 marks each.		
Q3	12	5 shaded circles. 2 marks each. Correct start point, 2 marks.		
Q4	3	Top, 3 marks.		
	7	Leg, 7 marks.		
	2	Position of leg, 2 marks.		
Q5	2	Horizontal line from $\mathbf{B_1}$	4	Establish ratio **AB** to $\mathbf{AB_1}$
	4	Radiating lines from **A** (2+2)	2	Find required lengths
	4	Completion of logo	4	Completion of logo
	2	Shade or colour	2	Shade or colour
Q6	8	1+1 For each of the points A and B. 2+2 for C.		
	4	Drawing triangle		
Q7	3	Fruit (180°)		
	3	Chocolate (135°)		
	3	Crisps (45°)		
	3	Shade or colour		
Q8	8	Mug depicted in a good quality freehand pictorial sketch.		
	4	Appropriate shading or colour		
Q9	12	Mirror, Hatch and Fillet (4 marks for each correct term)		
Q10	12	C, A, B, and D. 3 marks each.		
Q11	6	A equals 90°		
	6	B equals 54°		
Q12	3	Swing down side		
	3	Bisect baseline		
	3	Draw semi circle		
	3	2 for side of square, 1 drawing square.		
Q13	4	Draw 2 chords (2+2)		
	4	Bisect chords (2+2)		
	2	Locate centre		
	2	Draw hole		
Q14	5	Block A is in contact with 5 other blocks		
	7	Block B is in contact with 7 other blocks		
Q15	12	6 points of contact, 2 marks each.		

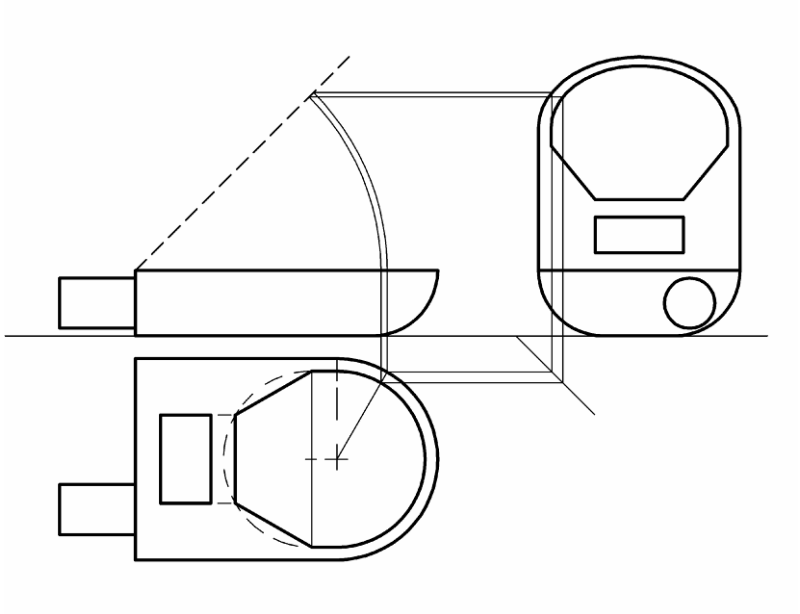
Q.1 Section B – Orthographic projection.



	Elevation (15)	
8	Lines	
1	Door	
1	Semi-circle	
2	Sloping line on chimney	
1	Hidden detail	
	Plan (20)	
8	Lines	
6	Semi-elliptical curve (Pts in Ele 1, Proj. to E.V. 2, Proj. to Plan 2, draw 1)	
4	Hidden detail	
	End View (17)	
14	Lines	
2	Window	
1	Hidden detail	
	True Shape (8)	
3	Rotate in plan	Project perp(3)
9	project from plan(3) project height (3) completion (3)	New xy line(3)Transfer heights (3) Completion (3)
10	**Drafting, accuracy, presentation**	

Total Marks 70

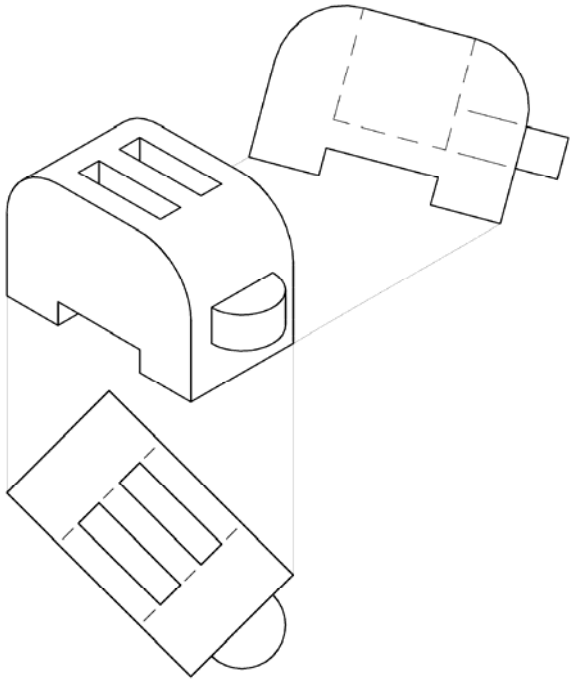
Q.2 Section B — Orthographic, Rotation, End View.



	Given Elevation (8)
4	Base
2	Aerial
2	45° line (correct length)
	Given Plan (17)
4	Outline
2	Aerial
6	Correct semi-Hexagon (incorrect size 4, incorrect angle give 2)
2	Semi-circle (internal)
3	Completion
	New Figure (35)
3	Projection of points from plan to elevation
3	Rotation of points in elevation
3	Projections from plan to new figure
3	Projections from elevation to new figure
5	Semi-Hexagon including vertical lines
6	Semi-elliptical curves (3 marks each)
12	4 (Lines), 2 (Rectangle) 4 (Quadrants 2+2), 2 (Circle)
10	**Drafting, accuracy, presentation**

Total Marks 70

Q.3 (a) Section B — Isometric Projection (Axonometric Axes Method)



Axonometric Axes Method	
	Plan (14)
2	Setting-up (position and orientation at 45º).
4	Outline of body
6	Internal slots/rectangles/hidden detail
2	Semi-circle
	Side Elevation (17)
2	Setting-up (position and orientation at 15º).
7	Lines
2	Quadrants
3	Handle
3	Hidden detail (1 mark if solid)
	Completion of Isometric Projection (29)
7	Base including cut out/step and 3 vertical lines.
6	Slots on top (3+3)
6	Visible side curves (2+2) and (1+1) for top edge lines
4	Hidden side curves (2+2)
6	Handle (curves 2+2) completion of drawing 2.
10	**Drafting, accuracy, presentation**

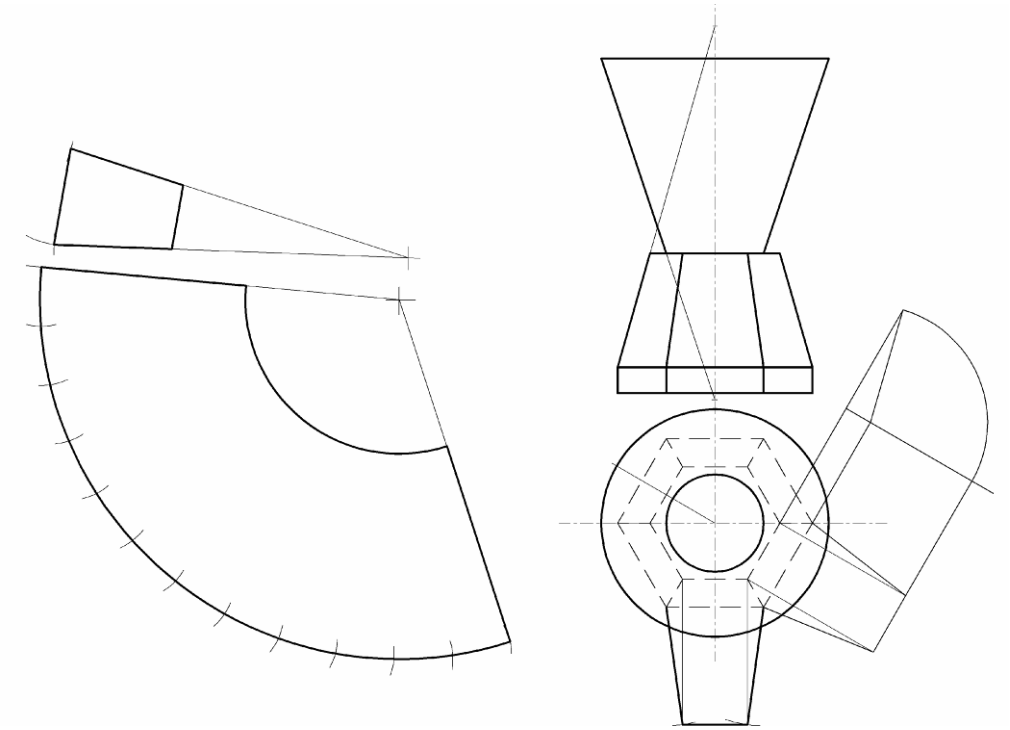
Total Marks 70

Q.3 (b) Section B — Isometric Projection (Isometric Scale Method)

Isometric Scale Method	
	Isometric Scale (10)
4	Setting up isometric scale (2 marks for 30º line and 2 marks for 45º line)
4	Applying dimensions on 45º line
2	Projecting from 45º line onto 30º line
	Projection of base and slots (15)
2	Apply measurements required for base/slots
6	Construction required for quadrants (2, 2, 2)
7	Construction required for Handle (Semi-circle 3, lines 2, location 2)
	Isometric Projection (6)
3	Direction of axes (1,1,1)
3	Axes lengths applied from isometric scale. (overall length, height, width)
	Completion of Isometric Projection (29)
7	Base including cut out/step and 3 vertical lines.
6	Slots on top (3+3)
6	Visible side curves (2+2) and (1+1) for top edge lines
4	Hidden side curves (2+2)
6	Handle (curves 2+2) completion of drawing 2
10	**Drafting, accuracy, presentation**

Total Marks 70

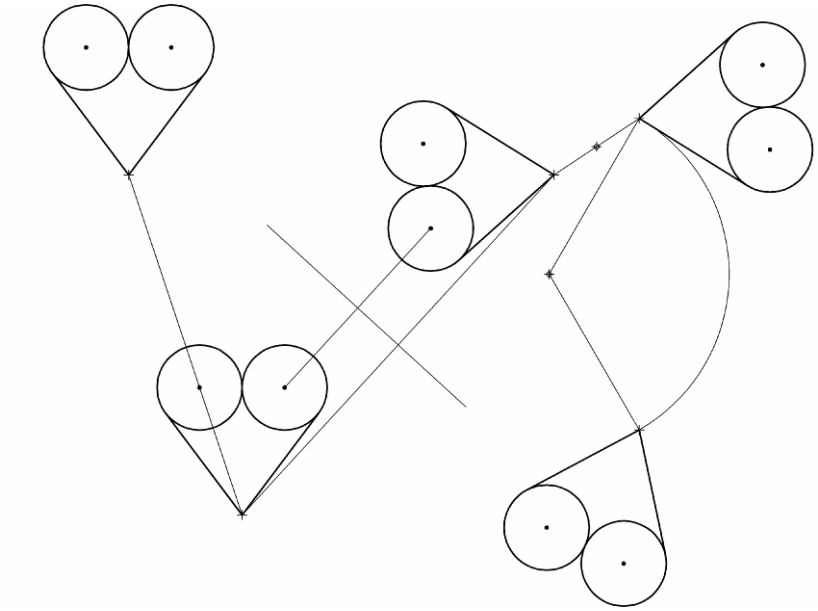
Q.4 Section B — Development



	Elevation (14)
14	Lines
	Plan (12)
8	Hexagons (4 +4)
4	Circles (2+2)
	Development of surface A (22)
5	Find extreme generator of full cone
4	Swing arc equal to extreme generator
3	Division of circumference of circle
4	Stepping out length of developed curve (2 correct increment, 2 correct No.)
4	Swing arc equal to frustum
2	Drawing the required development
	Development of B (12)
12	Development of B (rotation 4, projection 4, completion 4)
10	**Drafting, accuracy, presentation**

Total Marks 70

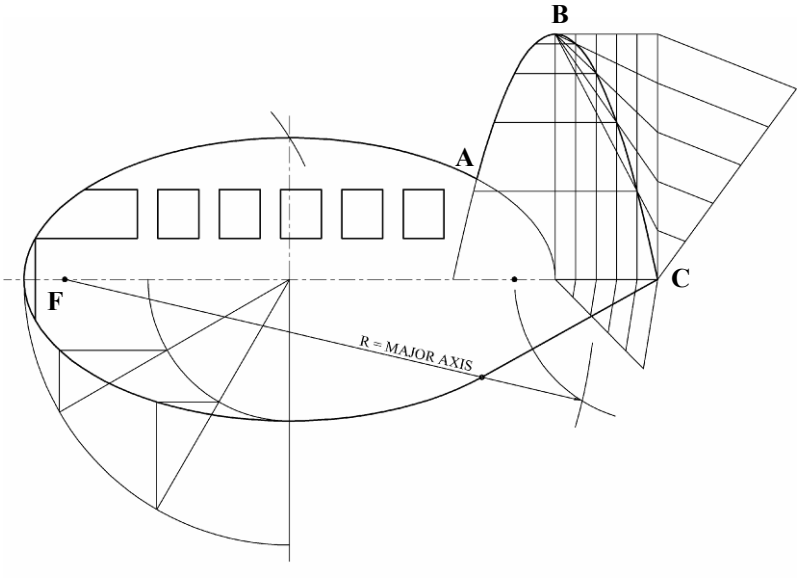
Q.5 Section B — Transformation Geometry



	Setting up (8)
2	Drawing Circles
4	Drawing tangents (2 marks each)
	Translation (12)
4	Lines projected parallel to P –P1.
4	Locating key image points.
4	Drawing the image figure accurately.
	Axial Symmetry (12)
4	Projecting perpendicular to symmetry line. (Deduct 2 marks if not perp.)
4	Locating key image points.
4	Drawing the image figure accurately.
	Central Symmetry (12)
4	Lines projected through point O
4	Locating key image points
4	Drawing the image figure accurately
	Rotation (16)
6	Locating centre of rotation. (Joining P3 to P4 and applying 30° angles).
4	Drawing arcs
4	Locating key image points.
4	Drawing the image figure accurately.
10	**Drafting, accuracy, presentation**

Total Marks 70

Q.6 Section B — Ellipse and Parabola



	Setting-up (4)
4	Points F, B, C and position of minor axis
	Parabola (14)
8	Construction to determine points on the parabola (2,2,2,2 marks).
4	Drawing of parabola ABC (2 marks for each side)
	Ellipse (24)
6	Swing half major axis from **F** or $\mathbf{F_1}$
3	Identify and draw minor circle
3	Identify and draw major circle
6	Locating additional points on the curve (2, 2, 2)
4	Drawing the ellipse
	Tangent (10)
5	Swing arc **CF** or $\mathbf{CF_1}$
5	Swing major axis to cut arc
2	Locate point of contact
2	Draw tangent
	Windows (8)
8	Incorrect size, deduct 3. Incorrect number, deduct 3.
10	**Drafting, accuracy, presentation**

Total Marks 70