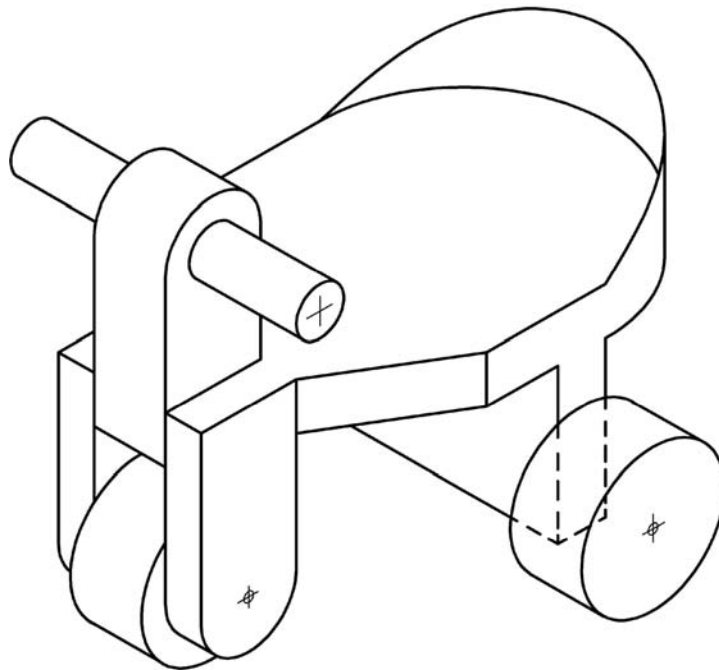




Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination 2006



Grafaic Theicniúil
Ardleibhéal

Scéim Mharcála

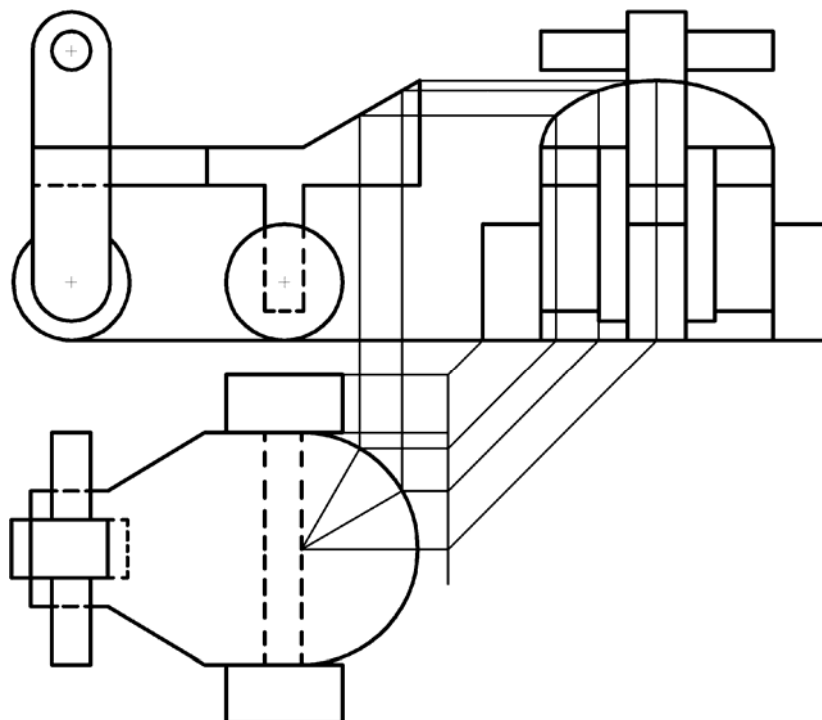
Roinn A agus B

Section A

Q1	12	Four diagrams, 3 marks for each correct label.	
Q2	12	4 points, 3marks each.	
Q3	4	Join A to B	
	4	Bisect line AB	
	4	Draw semi-circle	
Q4	8	Each end, 4 marks.	
	4	Seat	
Q5	4	Use Litter Bin etc.	
	4	No Smoking	
	4	Fire Point etc.	
Q6	8	1+1 For each of the points A, B, C and D	
	4	1 mark per line	
Q7	4	Horizontal line from B₁	Establish ratio AB to AB₁
	4	Radiating lines from A (2+2)	Find required lengths
	2	Completion of arrow	Completion of arrow
	2	Shade or colour	Shade or colour
Q8	8	Sharpener depicted in a <u>good quality</u> freehand pictorial sketch.	
	4	Appropriate shading or colour	
Q9	12	Circle, Trim and Chamfer (4 marks for each correct term)	
Q10	6	Block A is in contact with 7 other blocks	
	6	Block B is in contact with 4 other blocks	
Q11	6	108°	
	6	112°	
Q12	3	Join A to centre of circle	
	3	Bisect line	
	3	Draw semi-circle	
	3	Draw tangent	
Q13	4	Perpendicular to AB from corner	
	4	Axial symmetry	
	4	Completion of new triangle	
Q14	4	Division of quadrant	
	8	Stepping out distances (4x2)	
Q15	2	Line at any angle from end of rectangle	
	2	Step off 5 equal spaces	
	2	Parallel projections	
	2	Equal divisions of rectangle	
	4	Shade or colour to enhance presentation	

Section B

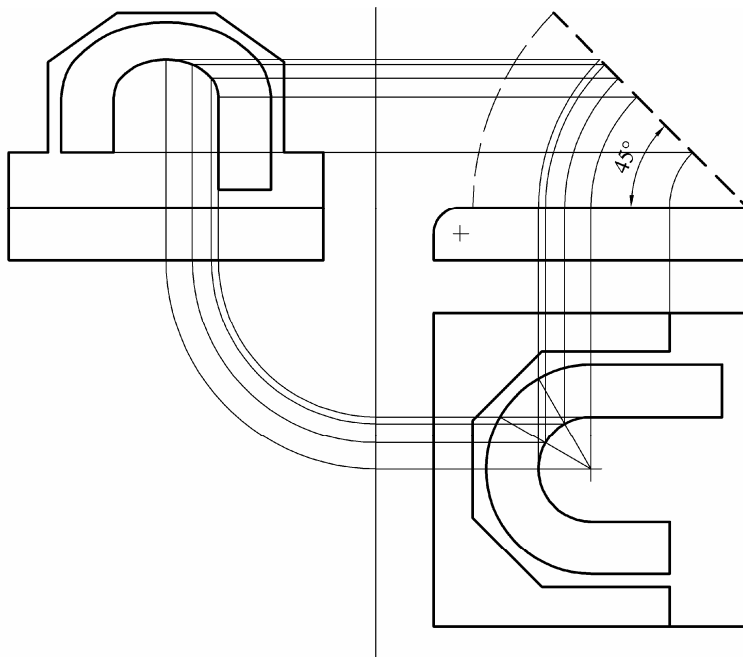
Q.1– Orthographic projection.



Elevation (16)	
11	Lines
3	Circles (1 mark each)
2	Semi-circles (1 mark each)
Plan (22)	
4	Wheels (1+1, 2 for front wheel or 1 if no hidden detail)
4	Handles
12	Lines
2	Semi-circle
End View (22)	
3	Wheels (1 mark each)
4	Handles
9	Semi-elliptical curve (Points in Plan 3, Project to Ele. 3, Project to E.V. 3)
6	Completion
10	Drafting, accuracy, presentation

Total Marks 70

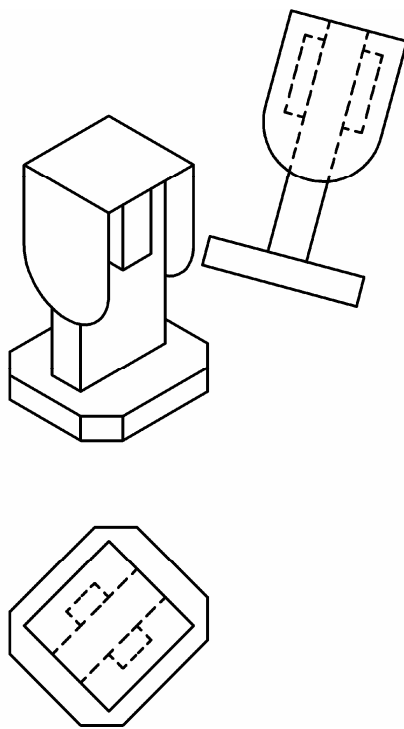
Q.2 Section B — Orthographic, Rotation, End View.



Given Elevation (8)	
4	Base
2	Quadrant
2	45° line (correct length)
Given Plan (17)	
4	Outline
6	Correct semi-octagon (incorrect size 4, incorrect angle give 2)
4	Semi-circles (2+2)
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-octagon
6	Semi-elliptical curves (3 marks each)
12	Lines
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 45°).
4	Outline of base
2	Internal square
6	Hidden detail (4 marks if solid)
Side Elevation (16)	
2	Setting-up (position and orientation at 15°).
2	Base
2	Stem
4	Side (1 mark per line + 1 mark for semi-circle)
6	Hidden detail (4 marks if solid)
Completion of Isometric Projection (30)	
12	Base (One mark per line)
5	Stem
2	Projection of top of phone booth
5	Visible side (curve 3 marks + lines 1+1)
4	Hidden side (curve 3 marks + line 1)
2	Phone
10	Drafting, accuracy, presentation

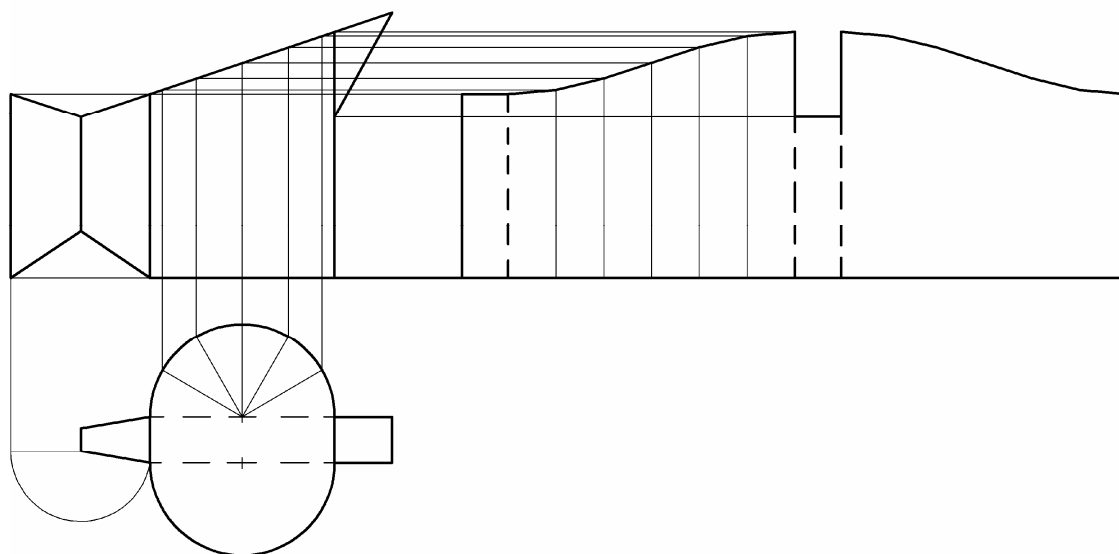
Total Marks 70

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

Isometric Scale Method	
Isometric Scale (12)	
4	Setting up isometric scale (2 marks for 30° line and 2 marks for 45° line)
4	Applying dimensions on 45° line
4	Projecting from 45° line onto 30° line
Projection of base, circle, stem and phone(12)	
2	Apply measurements required for base
6	Construction required for circle (2, 2, 2)
2	Construction required for stem (position on base)
2	Construction required for phone (position on stem)
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 (30)	
12	Base (one mark per line)
5	Stem
2	Projection of top of phone booth
5	Visible side (curve 3 marks + lines 1+1)
4	Hidden side (curve 3 marks + line 1)
2	Phone
10	Drafting, accuracy, presentation

Total Marks 70

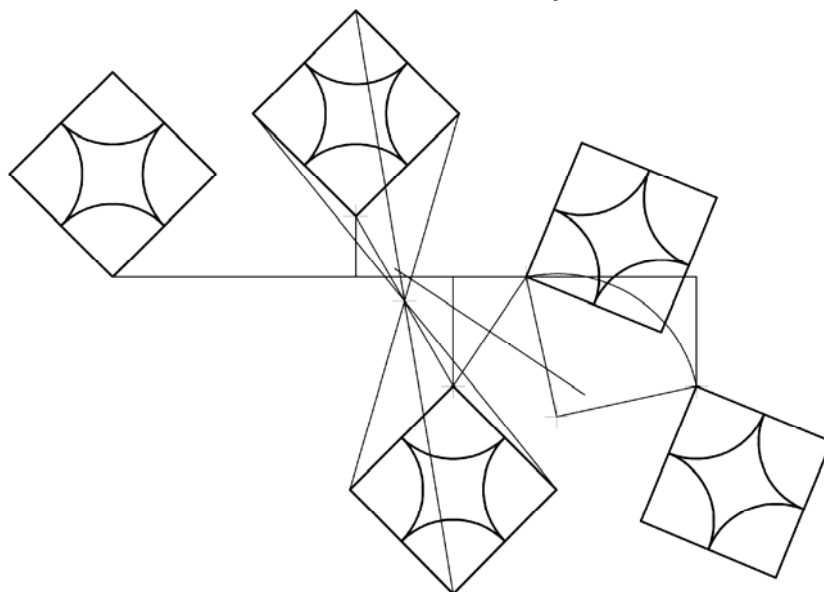
Q.4 Section B — Development



Elevation (7)	
7	Lines
Plan (16)	
8	Semi-circles (4 +4)
2	Lines
3	Handle
3	Spout
Development of surface A (29)	
4	Division of circumference of semi-circles
4	Stepping out length of developed curve (2 correct increment, 2 correct No.)
4	Flat/straight portions of plan (2 + 2)
6	Projecting lengths
5	Locating points
6	Drawing the required development
Development of B (8)	
8	Development of B (Rotation 2, projection 2, completion 4)
10	Drafting, accuracy, presentation

Total Marks 70

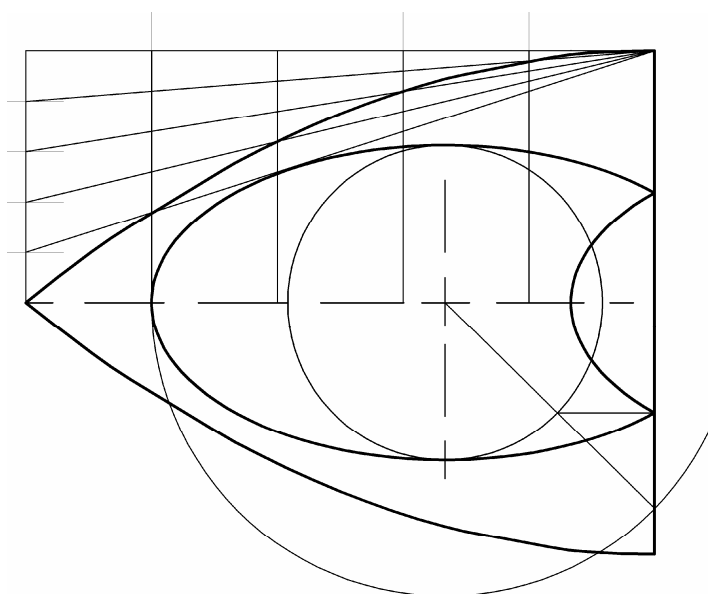
Q.5 Section B — Transformation Geometry



Setting up (8)	
4	Drawing square
4	Drawing quadrants (1 mark each)
Translation (12)	
4	Lines projected parallel to P –P1.
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
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.
Rotation (16)	
4	Locating centre of rotation. (Joining P3 to P4 and applying 45° 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 (5)		
5	Points A, B, C, D, E and F	
Parabola (18)		
8	Construction to determine points on the parabola (2,2,2,2 marks).	
6	Drawing of parabola AB	
4	Drawing of parabola CB	
Ellipse (24)		
3	Draw major circle	
3	Horizontal line from D or F	
3	Radiating line from centre	
3	Locate and draw minor circle	
6	Locating additional points on the curve	
6	Drawing the ellipse	
Elliptical Arc DGF (13)		
4	Mark ordinate DF on ellipse	AC as an axis
3	Locate distance from G to line FD	
3	Locate two intermediate points	
3	Draw DGF	
10	Drafting, accuracy, presentation	

Total Marks 70