

Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate 2013

Marking Scheme

Technical 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

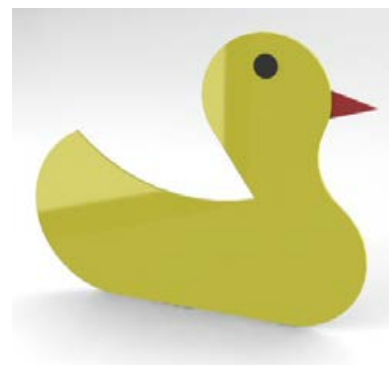
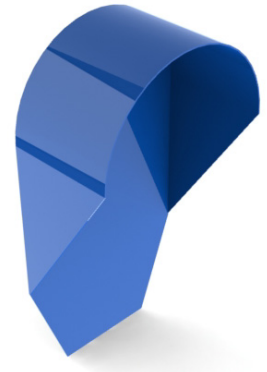
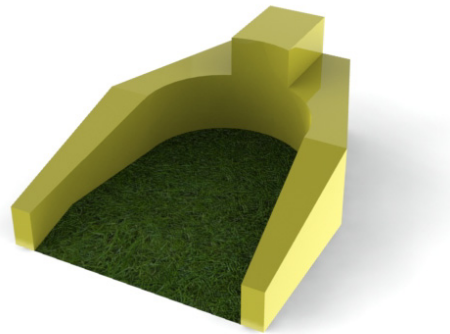
Assumptions about future marking schemes on the basis of past schemes should be avoided. While the underlying assessment principles remain the same, the details of the marking of a particular type of question may change in the context of the contribution of that question to the overall examination in 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.



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2013

Grafaic Theicniúil
Technical Graphics O.L.



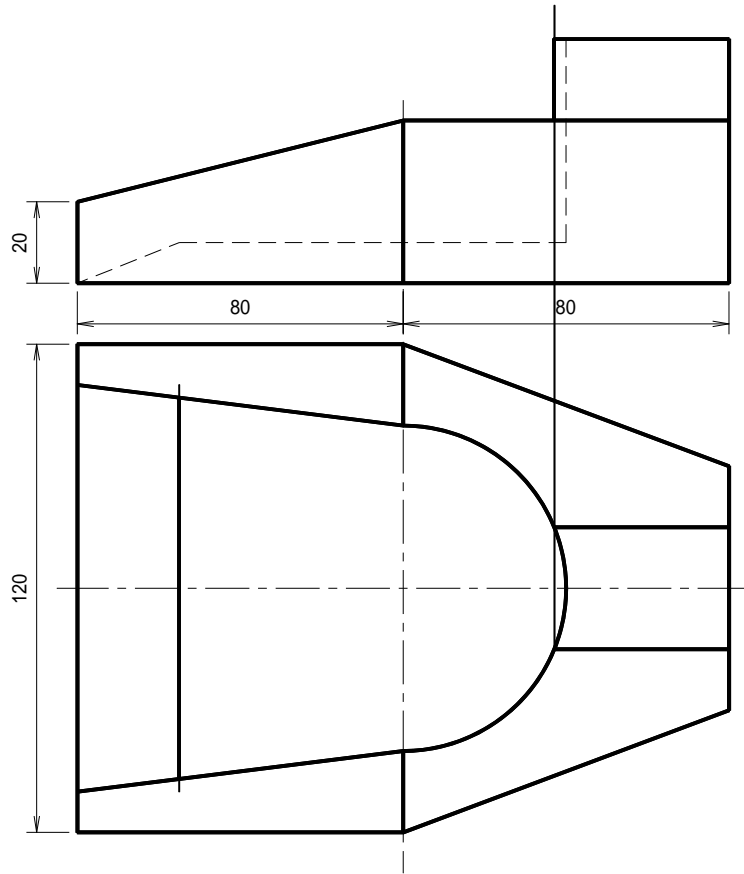
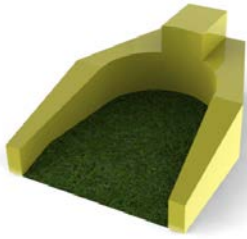
Gnáthleibhéal
Scéim Mharcála
Roinn A agus B

Section A - Any ten questions from this section

Q1	4 8	Projection of lines to End Elevation (<i>2x2 marks</i>) End Elevation – 4 lines – 2 marks per line (<i>4x2 marks</i>)
Q2	8 4	For a good quality, well proportioned freehand pictorial sketch (<i>5 average quality or rule used</i>) For colour or shading
Q3	6 6	Correct device - Scanner (<i>6 marks</i>) Correct use (<i>6 marks</i>)
Q4	4 8	Big circle (<i>4 marks</i>) (<i>2 marks if freehand or incorrect size</i>) Diagonal line (<i>2 marks</i>) Triangle (<i>3x2 marks</i>)
Q5	4 4 4	Correct location of F1 and F2 (<i>4 marks</i>) Horizontal projection lines (<i>2x2 marks</i>) Drawing diamond shape (<i>4x1 marks</i>)
Q6	8 4	15 Lines half mark per line (<i>8 marks</i>) For colour or shading (<i>4 marks</i>)
Q7	12	42-44 sq. metres = <i>12 marks</i> (<i>41 or 45 = 6 marks</i>)
Q8	6 6	A = 180cm (<i>6 marks</i>) B = 100cm (<i>6 marks</i>)
Q9	8 4	Elevation of blocks – 4 rows 2 marks for each row correct (<i>-1 mark each row incorrect</i>) Good proportion
Q10	8 4	Location of centre (<i>4 marks</i>) Drawing arc (<i>4 marks</i>) Location of 2 points of contact (<i>2x2 marks</i>)
Q11	6 6	Correct command (<i>6 marks</i>) Correct command (<i>6 marks</i>)
Q12	6 6	1 mark for each projection line to vertical plane 6 marks for correct outline (<i>4 marks for incomplete outline</i>)
Q13	12	Drawing pentagon – 4 lines (<i>4x3marks</i>) (<i>-2 marks for each line incorrect</i>)
Q14	12	6 lines – 2 marks per line in perspective view (<i>6 x 2 mark</i>)
Q15	3 7 2	Projection lines (<i>3x1mark</i>) Completion of shape (<i>7x1mark</i>) For colour or shading (<i>2 marks</i>)
Total 120		

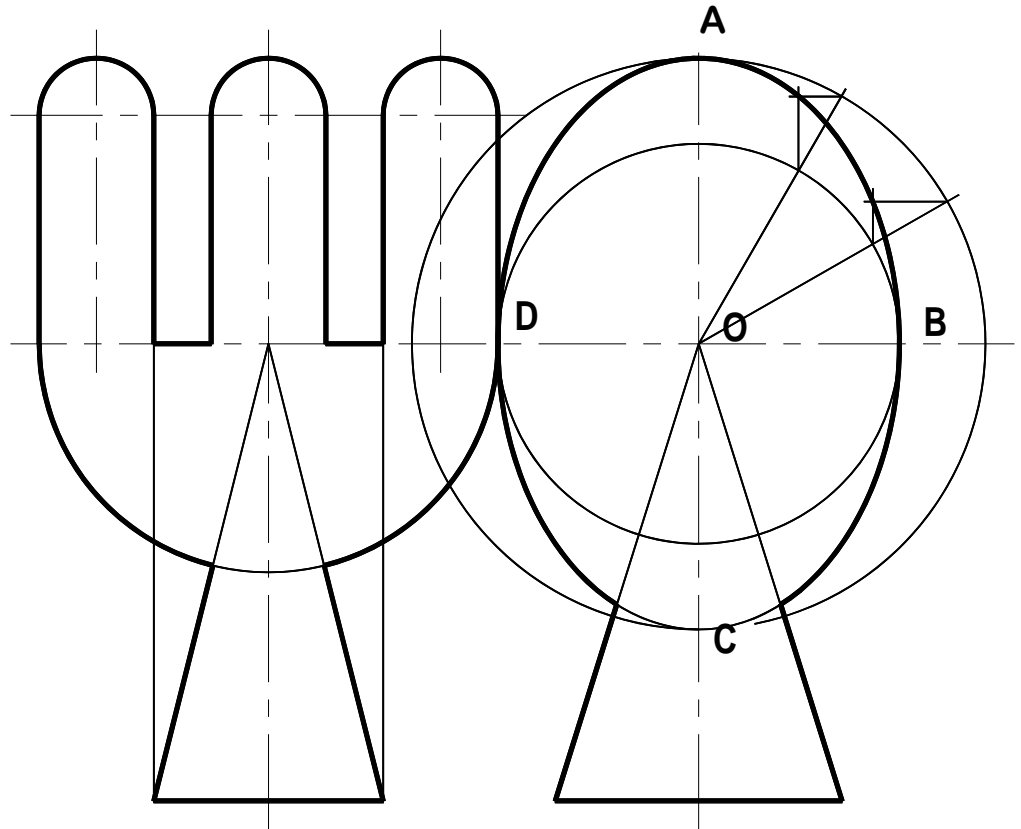
Section B - Any four questions from this section

Ceist 1: Orthographic Projection



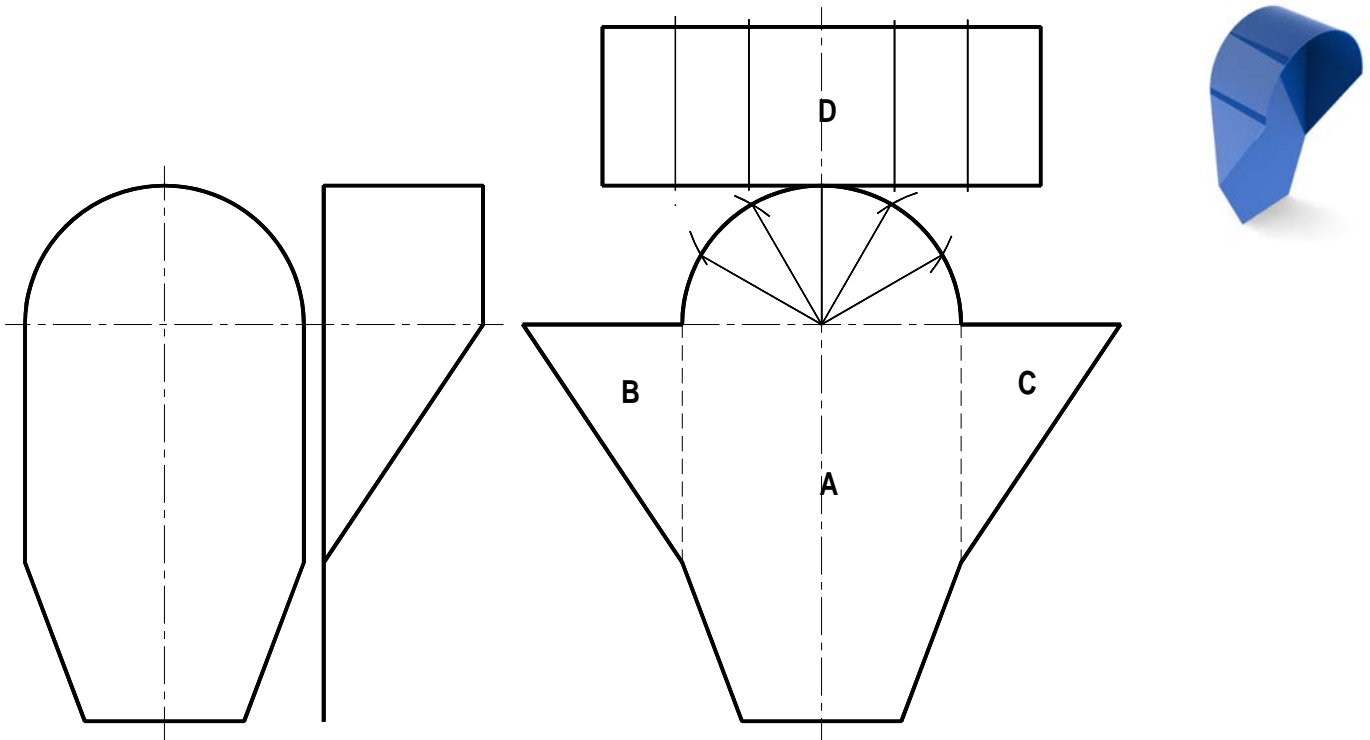
Orthographic Outline (10)	
10	Elevation and Plan positioned correctly (4marks if not aligned or incorrect side, 1 view = 3 marks)
Elevation (20)	
6	3 horizontal lines – (3x2 marks)
8	4 vertical lines – (4x2 marks)
3	Sloping line – 3 marks
3	Hidden detail lines - (3x1 mark)
Plan (24)	
10	Outline shape - 4 lines (4x1 mark) 2 sloping lines (2x3 marks)
10	Cut-out shape – 3 lines (3x2 marks) Semi-circle - 4 marks
4	4 lines into semi-circle (4x1 mark)
Dimension lines (4)	
4	4 dimension lines - (4x1 mark)
(12)	Drafting, accuracy and presentation
Total 70	

Ceist 2: Ellipse



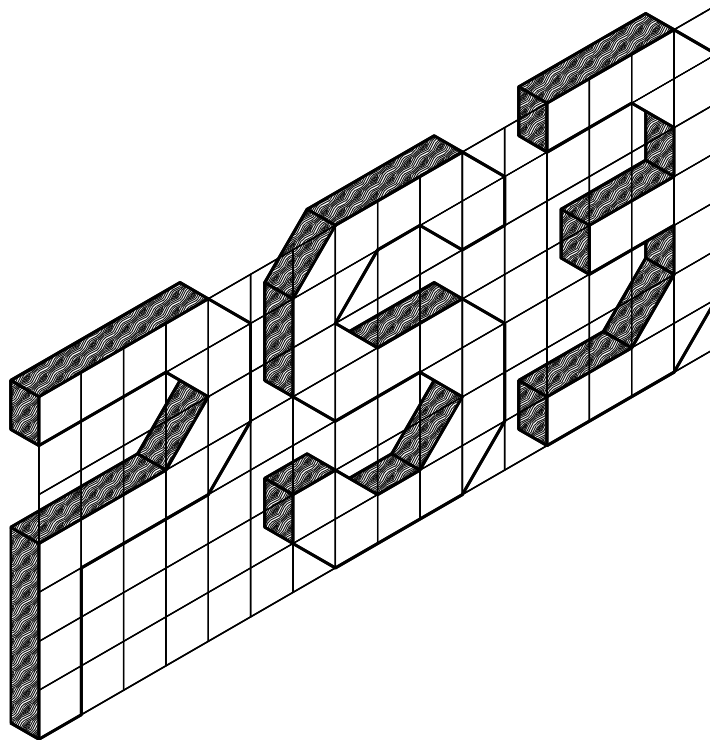
Right side (33)	
6	Ellipse; Major AC; Minor DB – (2x3 marks)
10	Construction for ellipse – 10 marks (incorrect application = 4 marks)
8	Drawing curve of ellipse (8,6,4, depending on quality)
9	Offset base height 80 – 3 marks 3 lines – (3x2 marks)
Left side (25)	
5	R 40 semi-circle - 3 marks Offset height 50 – 2 marks
14	8 lines - (8x1 mark) 3 semi-circles - (3x2 mark)
6	3 base lines – (3x2 marks)
(12)	Drafting, accuracy and presentation
Total 70	

Ceist 3: Surface Development



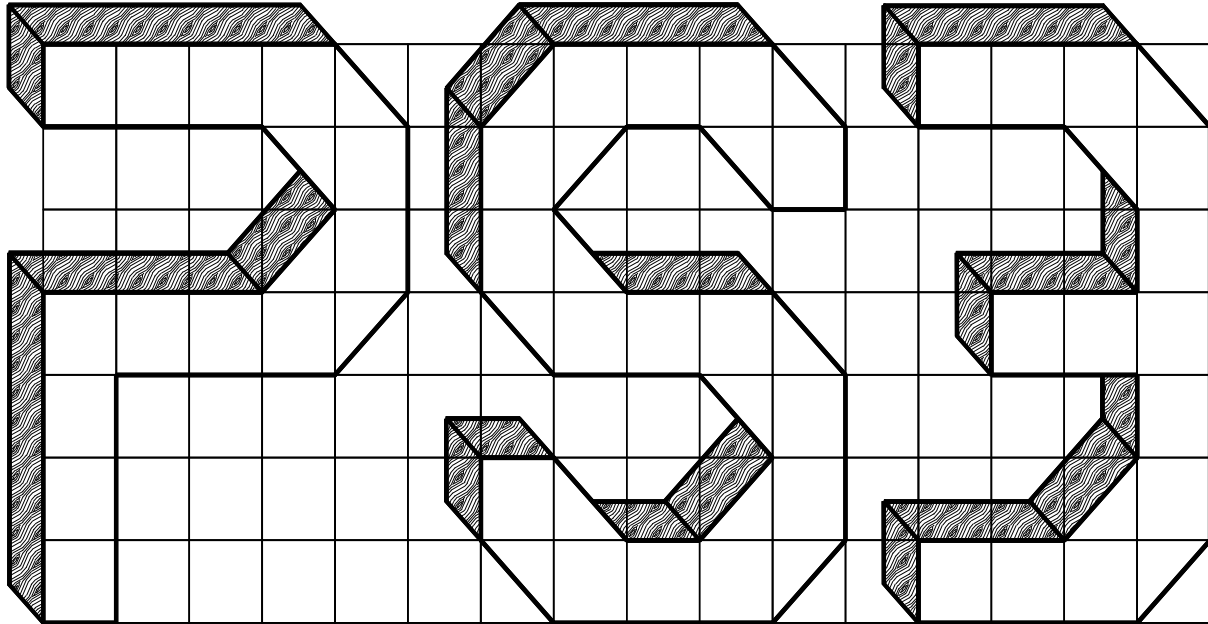
Orthographic (20)	
4	Elevation and End Elevation in correct position <i>(End elevation in wrong location or 1 view = 2 marks)</i>
10	Elevation Semi-circle - 3 marks 3 lines (3x1 mark) 2 sloping lines (2x2 marks)
6	End Elevation 3 lines (3x1 marks) Sloping line - 3 marks
Development (38)	
13	Back A – 5 lines (5x2 marks) Semi-circle - 3 marks
6	Side B - 2 lines (2x3 marks)
6	Side C - 2 lines (2x3 marks)
5	Construction for finding correct length of side D - 5 marks
4	Side D - 4 lines (4x1 mark)
4	Fold lines - (2x2 marks)
(12) Drafting, accuracy and presentation	
Total 70	

Ceist 4: Isometric Projection



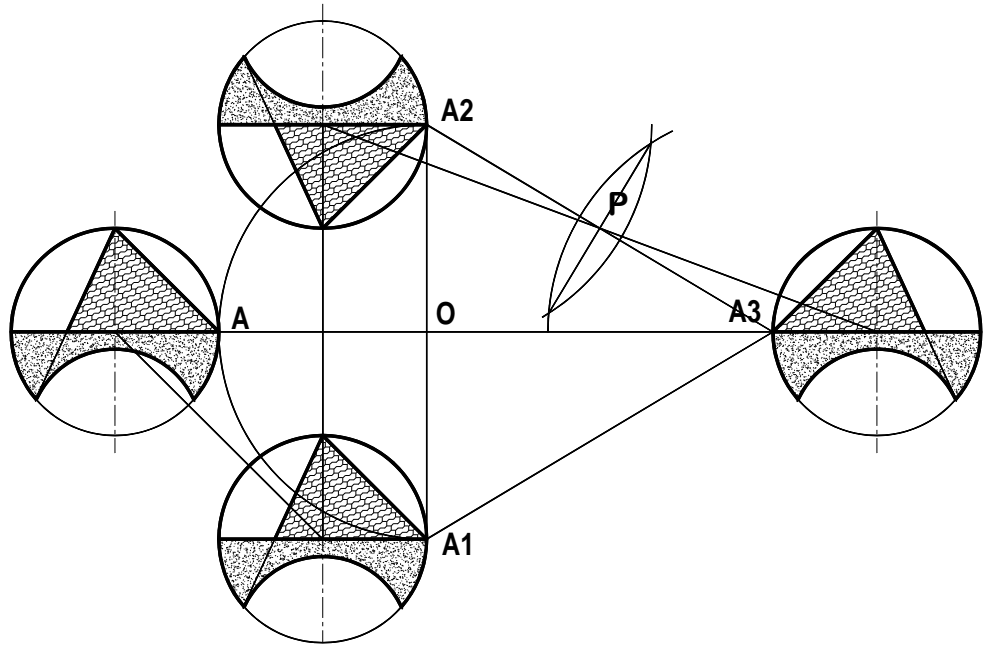
Setting Up (13)	
9	Height, length and width of grid (<i>3x3 marks</i>) (<i>deduct 2 marks each one inaccurate</i>)
4	Isometric outline (<i>deduct 2 + 2 if 30° angles are not used</i>)
Front Face (27)	
7	Letter P – 13 lines (half mark each line)
12	Letter S – 24 lines (half mark each line)
8	Number 3 – 16 lines (half mark each line)
Complete width (18)	
18	6 marks per digit (<i>3 marks per digit if all lines are not put in</i>)
(12)	Drafting, accuracy and presentation
Total 70	

Ceist 4: Oblique Projection



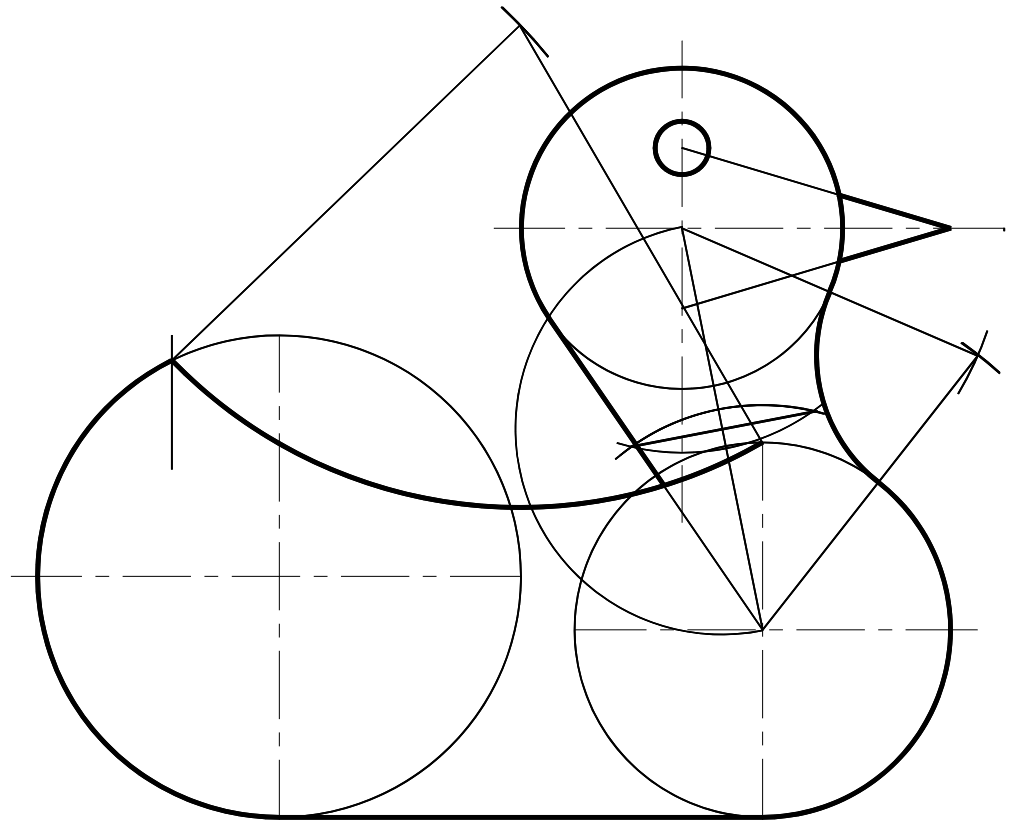
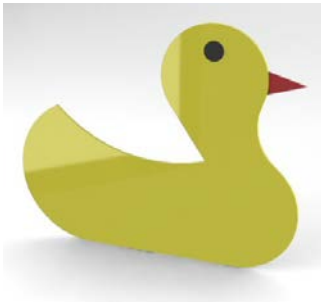
Setting Up (13)	
9	Height, length and width of grid (<i>3x3 marks</i>) (<i>deduct 2 marks each one inaccurate</i>)
4	Oblique outline (<i>deduct 4 marks if 45° angle not used</i>)
Front Face (27)	
7	Letter P – 13 lines (half mark each line)
12	Letter S – 24 lines (half mark each line)
8	Number 3 – 16 lines (half mark each line)
Complete width (18)	
18	6 marks per digit (<i>3 marks per digit if all lines are not put in</i>)
(12)	Drafting, accuracy and presentation
Total 70	

Ceist 5: Transformation Geometry



Setting up (16)	
10	Draw given fig ; R30 circle – 4 marks R25 arc – 3 marks 3 lines - (3 x 1 mark)
4	Locating points A, A1, A2, A3 (4 x 1 mark)
2	Locating point P – 2 marks
Translation (14)	
4	Drawing lines parallel to A-A1 (<i>correct position and orientation</i>)
10	Drawing fig. as above
Axial Symmetry (14)	
4	Drawing lines perpendicular to A-A3
10	Drawing fig. as above
Central Symmetry (14)	
4	Drawing lines through centre point P
10	Drawing Fig. as above
(12)	Drafting, accuracy and presentation
Total 70	

Ceist 6: Circles and Tangents



Outline Construction (23)	
6	R45 circle – (6 marks)
7	R35 circle and position – (5 marks + 2marks)
7	R30 circle and position – (5 marks + 2marks)
3	Base line - (3 marks)
Beak and Eye (9)	
6	2 lines - (2x3 marks)
3	Eye circle - (3 marks)
Arcs /Tangent (26)	
8	Tangent construction (6 marks) Tangent line (2 marks)
8	R90 arc – centre location construction (4marks) Arc - (4 marks)
10	R30 arc – centre location construction and points of contact (4 marks +2 marks) Arc - (4 marks)
(12)	Drafting, accuracy and presentation
Total 70	