

**Pre-Junior Certificate Examination, 2016** 

## **Technical Graphics**

P

Ordinary

Higher

ExamCentre, Units 3/4, Fonthill Business Park, Fonthill Road, Dublin 22, D22 V348.



## Marking Scheme

Section A	Pg. 3
Section B	Pg. 6
Section A	Pg. 12
Section B	Pg. 15

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**J.60A** 

School Stamp

Mark

Question

Section A

1



**Pre-Junior Certificate Examination**, 2016

# **Technical Graphics Ordinary Level** Section A

(120 marks)

## *Time* : $2\frac{1}{2}$ *Hours*

#### *Instructions*

- Answer **any ten** questions in the spaces provided. *(a)* All questions carry equal marks.
- Construction lines must be clearly shown. *(b)*
- All measurements are in millimetres. (c)
- This booklet must be handed up at the end of the examination. (d)
- Write your name, school's name and teacher's name in the (e) boxes provided below and on all other pages used.

	2
Name:	3
School	4
	5
	6
Tagahaw	TOTAL
leacher:	GRADE



7. The outline of garden pond is shown. Write down the area of the lake in square units. 1 square = 1 square unit.Area of the pond: <u>39</u> square units. MARKING SCHEME - 38 to 40 cm<sup>2</sup> (12m) \*\* Award 6 marks for 37 or 41. 8. Using the scale provided, measure and write down the dimensions A and B for the dog kennel shown. 225 mm **A**: 300 mm **B**: MARKING SCHEME 100 A – 225 mm (6m) B - 300 mm (6m) 9. The figure shows a set of blocks. MARKING SCHEME - outline (6m) \_ completion (6m)





( 13.	The diagram shows a compass.
	Rotate the needle in the direction of the arrow through $120^{\circ}$ about the point <b>P</b> and complete the drawing of the needle in the rotated position.
	MARKING SCHEME - arc for rotation ( <b>3m</b> ) - correct direction ( <b>3m</b> ) - image ( <b>6m</b> )
14.	The figure shows an incomplete two point A small 3D graphic of the dog kennel is al Complete the perspective drawing of the d
( 15.	Complete the design for the logo by constr
	Colour <b>or</b> shade the completed logo.
MAR – pr – lin – co	KING SCHEME ojection & distances (6m) nes (4m) olour/shading (2m)





# Orthographic Outline (10m)

#### (a) Elevation (21m)

- trailer body (8m)
- wheel (2m)
- tow bar lines (6m)
- hidden details (5m)
- (b) Plan (24m)
  - trailer body (10m)
  - tow bar (8m)
  - wheels (6m)
- (c) Dimensions (4m)
- Accuracy / draughtsmanship (11m)

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#### **Pre-Junior Certificate Examination, 2016**

#### Ordinary Level – Section B

Scale 1:1



MARKING SCHEME
Total (70)
Ellipse (30m) - major axis (4m) - minor axis (4m) - elliptical constructions (12m) - curve (10m)
<ul> <li>Arcs and Circles (28m)</li> <li>semi-circle (4m)</li> <li>arcs for centre point (6m)</li> <li>drawing arc (2m)</li> <li>two straight lines at base (4m)</li> <li>correct centre points (6m)</li> <li>correct circles (6m)</li> </ul>
Accuracy / draughtsmanship (12m)



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Scale 1:1







MARKING SCHEME
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Total (70)

(a) Isometric **or** (b) **O**blique

Set-up (13m) height, length, width (9m)
outline (4m) Front Face (23m) - G - 21 lines (10m) - A - 11 lines (6m) - P - 13 lines (7m) Complete Projection (24m) - 8 marks per letter Accuracy / draughtsmanship (10m)

Note: Solution scale 1:2, Student scale 1:1

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#### Ordinary Level – Section B

Scale: see note



#### Total (70) Set up (16m) \_ circle (5m) square (5m) locating points A, A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub> (4m) locating point P (2m) --Translation (14m) drawing lines parallel to $A-A_1$ (5m) correct image (9m) -Axial symmetry (14m) - drawing lines perpendicular to A-A<sub>3</sub> (5m) \_ correct image (9m) -Central symmetry (14m) \_ drawing lines through P (5m) correct image (9m) -

Accuracy / draughtsmanship (12m)

MARKING SCHEME



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Scale 1:1



### MARKING SCHEME Set up (30m) centre points (9m) circles / arc drawn (9m) - lines (12m) Top arc (12m) R85 arcs (8m) accurate arc (4m) Tangent (16m) join to centre point (4m) bisect line (4m) draw semi-circle (4m) draw tangent (4m)

Accuracy / draughtsmanship (12m)

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#### **Pre-Junior Certificate Examination, 2016**

Ordinary Level – Section B



**Pre-Junior Certificate Examination, 2016** 

# **Technical Graphics** Higher Level Section A

(120 marks)

## Time : 3 Hours

#### **Instructions**

- Answer any ten questions in the spaces provided. *(a)* All questions carry equal marks.
- Construction lines must be clearly shown. *(b)*
- All measurements are in millimetres. (c)
- This booklet must be handed up at the end of the (d)examination.
- Write your name, school's name and teacher's name in the (e) boxes provided below and on all other pages used.

Name:	
School:	
Teacher:	

School St	amp
Question	Mark
Section A	
1	
2	
3	
4	
5	
6	
TOTAL	
GRADE	
	School St Question Section A 1 2 3 4 2 3 4 5 5 6 7 0 TOTAL GRADE















#### MARKING SCHEME Total (70) Plan (4m) Elevation (20m) construction to locate top point of the sail (4m) finding the centre point and drawing arc (4m) bisecting angle to locate centre point of circle (4m) circle tangential to both lines (4m) 45° lines to draw square (2m) draw square (2m) -(b) New figure Outline (10m) project lines from elevation to plan (2m) rotate lines in plan (2m) project to end view (2m) project lines from elevation to end view (2m) straight edges of the sail (2m) -Inner detail (26m) curved edge of the sail points (6m) ellipse (12m) -curve (4m) square (4m) -Accuracy / draughtsmanship (10m)

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#### **Higher Level – Section B**



MA	RKING SCHEME
Tot	1 (70)
(a)	<ul> <li>Elevation (14m) <ul> <li>correct lines (8m)</li> <li>correct arc (2m)</li> <li>hidden detail (4m)</li> </ul> </li> <li>Plan (6m) <ul> <li>outline (4m)</li> <li>slots (2m)</li> </ul> </li> <li>Completion (38m) <ul> <li>lines (14m)</li> <li>curves (24m)</li> </ul> </li> <li>Accuracy / draughtsmanship (10m)</li> </ul>
(b)	<ul> <li>Scale (12m) <ul> <li>setting up scale (4m)</li> <li>setting dimensions (4m)</li> <li>projecting dimension (4m)</li> </ul> </li> <li>Constructions (10m) <ul> <li>circle (height/width) (6m)</li> <li>isometric axis correct (4m)</li> </ul> </li> <li>Completion (38m) <ul> <li>lines (14m)</li> <li>curves (24m)</li> </ul> </li> <li>Accuracy / draughtsmanship (10m)</li> </ul>

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Higher Level – Section B





Total (70)

- (a) Set up (8m)
  - draw given figure (4m)
  - locate points (4m)

#### (b) – Central symmetry (12m)

- locate point of symmetry (2m)

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- project lines through (2m)
- locate image points (4m)
- drawing the image figure
- accurately (4m)
- Translation (12m)
  - lines projected parallel to  $P_1 P_2$  (4m)
  - locate image points (4m)
  - drawing the image figure
  - accurately (4m)
- Axial symmetry (12m)
  - locate axis of symmetry (2m)
  - project perpendicular to axis (2m)
  - locate image points (4m)
  - drawing the image figure accurately (4m)
- Rotation (16m)
  - locate centre of rotation (4m)
  - drawing arcs (4m)
  - locate image points (4m)
  - drawing the image figure accurately (4m)

Accuracy / draughtsmanship (10m)





 $P_2$ 



ai (70)	
Develope (12-m)	
Parabola (12m)	
- draw rectangle (2m)	
- dividing into equal parts (4m)	
- lines parallel to axis (2m)	
- lines joined to vertex (2m)	
- join points to form curve (2m)	
Ellipse (26m)	
- locate focal points (2m)	
<ul> <li>add distances to find length of</li> </ul>	
major axis(4m)	
- mark major axis (4m)	
- locate minor axis (4m)	
- method to find points (6m)	
- curve (6m)	
Tangent (10m)	
- arcs (4m)	
- line to give point of contact (2m)	
- tangent (2m)	
- project across for other tangent (2m)	
Curve $(12m)$	
- translate points (8m)	
curve (Am)	

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Scale 1:1