



Cambridge International Examinations
Cambridge Ordinary Level

CDT: DESIGN AND COMMUNICATION

7048/01

Paper 1

October/November 2016

MARK SCHEME

Maximum Mark: 80

Published

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This document consists of **7** printed pages.

Page 2	Mark Scheme	Syllabus	Paper
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- 1 (a) Top square**
 Top square drawn in isometric [1]
 Top square correct to overlay (80mm) [1]
 Corners rounded [1]
Top circle
 Ellipse of any size drawn (any method) [1]
 Ellipse correct to overlay [1]
Bottom circle
 Ellipse of any size drawn [1]
 Ellipse correct to overlay (ignore hidden edge) [1]
Height
 Height of 90mm (regardless of size of top and bottom) [1]
Sloping sides
 Two sloping sides drawn to Candidate solution [1]
 Drawing correctly lined in [1] [10]
- (b) (i)** Vacuum forming / blow moulding [1]
- (ii)** Any **two** from:
Large quantity of identical pots can be produced from a single former [1]
suitable for mass production [1]
material can be recycled [1] [2]
- (c)** Identifies the type of plastic (polypropylene) [1]
 which then allows it to be sorted for recycling [1] [2]
- (d)** Right half of bananas added [1]
 Right half of bananas added in a similar style outline & detail to that given [1] [2]
- Symbol clearly identifiable as strawberry [1]
 Symbol in a similar style to the cherry (stalk) [1]
 High quality symbol – shading / highlighting [1] [3]
- (e)** Any three surfaces added [1]
 Two trapezoids and a rectangle added of any size added [1]
 Each surface correct to overlay L to R Surface 1 [1]
 Surface 2 [1]
 Surface 3 [1]
 Fold lines correctly identified - - - - - [1]
 Glue tab added left or right [1]
 Glue tab added in correct position (left side) [1] [8]
Or on RHS with left line bold
- (f)** Any **two** from:
 Histograms [1]
 Pie chart/diagrams [1]
 Bar charts and graphs [1] [2]

[Total: 30]

Page 3	Mark Scheme	Syllabus	Paper
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2 (a) Plan

- Second wing added [1]
 Wing correct to overlay [1]
 Two lines added to show corners of hexagon shaped head [1] [3]

Front view

- Beak completed to overlay [1]
 Top right side 30 degree line of hexagon to overlay [1]
 Right side upright of hexagon to overlay [1] [3]

End view

- Two wings added of any size [1]
 Left and right wing correct to overlay [1]
 Any Tail added [1]
 Tail added thickness added (rectangle) [1]
 Tail correct to O/L [1]
 Body, including head, correctly completed [1] [6]

- (b)** Truncated cone added [1]
 Concentric circles added [1]
 Orientation correct for third angle projection (circle on left) [1] [3]
Truncated cone – small Ø on left

- (c)** 180 mm major axis [1]
 80 mm minor axis [1]
 Some construction evident [1]
 Clear construction evident [1]
 At least six points plotted [1]
 Ellipse profile to overlay [1]
 Hexagon extended top right to meet ellipse profile [1]
 Top left of ellipse stops at head vertical [1]
 Lower left end of ellipse lines up with bottom of hexagon [1] [9]

- (d)** Trapezium (accept trapezoid) [1]
 Isosceles [1]
 Triangle [1] [3]

- (e) (i)** PVA, Pritt stick, latex glue, double sided tape... [1]
Not a solvent based glue as it dissolves the foam

- (ii)** Sketch shows a slot in at least one piece of foam board [1]
 Slot in both pieces of foam board of an appropriate size [1] [2]

[Total: 30]

Page 4	Mark Scheme	Syllabus	Paper
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- 3 (a) (i) Some shading added to the drawing of part A [1]
 Shading shows a good understanding of graduation to show a curved surface [1]
 Shading to pin matches the light source used for the circular body of A [1] [3]
- (ii) Thick lines added to the base [1]
 Thick lines added to all outer edges only of base [1]
 Thick lines added to both verticals and back curve of pin [1]
 Thin lines left to lower curves (x2) of pin [1] [4]
- (iii) Any **two** from:
 Can be moulded to a range of shapes [1]
 Hygienic / non toxic [1]
 Washable [1]
 Colourful [1]
 Quantity production [1] [2]
- (b) Right hand half of B added [1]
 Right hand half mirror of given to O/L [1]
 Body of A drawn on centre line [1]
 Pin of A drawn on centre line [1]
 Right hand half of B hatched correctly [1]
 Hatching drawn on part A [1]
 Hatching in opposite direction on part A to part B and complete [1] [7]
- (c) Understanding that:
 The parts must push together easily [1]
 The parts must not fall apart [1]
 The parts can be separated with a little effort [1] [2]
 Any **two** responses
- (d) Semi-circle drawn on Ø40 on plan and divided into 6 [1]
 Semi-circle drawn on Ø40 on side view and divided into 6 [1]
 Lines projected along Ø40 to touch Ø50 on plan [1]
 Lines projected along Ø40 on side view [1]
 Lines projected down from intersection [1]
 To give points plotted on plan [1]
 Points joined with a smooth curve [1] [7]

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- 4 (a) (i) Missing vertical and horizontal line of square added [1]
 Square bisected horizontally and vertically [1]
 (measured or constructed)
 Four portions correct to overlay [1] [3]
 (even if construction not visible)
- (ii) Circle drawn [1]
 Ø40 circle drawn [1]
 Four sectors drawn [1]
 Sectors correct to overlay (rotate overlay) [1] [4]
- (iii) Octagon drawn [1]
 Regular Octagon drawn 20 side [1]
 Lines drawn to divide the octagon [1]
 8 equal portions correct to O/L or candidate solution [1] [4]
- (iv) One angle or side bisected (or 30° set square) [1]
 Second angle bisected (or 30° set square) [1]
 Centre used to draw out to corners of triangle [1]
 Three triangles correct to overlay [1] [4]
- (b) Circle drawn in Planometric [1]
 Circle drawn correct size [1]
 Second circle [1]
 Height to second circle 20 mm [1]
 Sector removed [1]
 Face / faces visible [1]
 90° sector [1] [7]
- (c) Cheese shape used as a basis for a character [1]
 Character clearly identifiable as... [1]
 Quality cartoon character [1] [3]

[Total: 25]

Page 6	Mark Scheme	Syllabus	Paper
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- 5 (a) Right hand side in perspective to VP2 [1]
 Right hand side in proportion [1]
 Left hand side in perspective to VP1 [1]
 Left hand side in Proportion [1]
 4 steps drawn to front [1]
 4 steps drawn to rear [1]
 4 steps reducing in height [1]
 4 steps reducing in width [1]
 Top of first step visible [1]
 Drawing correctly lined in [1] [10]
- (b) Solution shows a rise of five steps [1]
 Solution uses 15 blocks [1] [2]
- (c) At least one block added anywhere with the correct:
 height [1]
 length [1]
 depth [1]
 Front second layer correct [1]
 Front third layer correct [1]
 Back R/H block level 3, level with top of front level three [1]
 Level four correct [1]
 All blocks lined in **and** arrows added [1] [8]
- (d) Lines projected at 90° from the sloping surface of side view [1]
 Rectangle drawn [1]
 Rectangle correct to size 20 × 105 [1]
 Arrow drawn [1]
 Arrow correct to length (59–60 mm) [1] [5]

[Total: 25]

Page 7	Mark Scheme	Syllabus	Paper
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- 6 (a) Square drawn in [1]
 Square drawn in the circle correct to overlay [1]
 Ø30 circle added and in correct position [1]
 R25 arc from given circle and centre line to plot centre [1]
 R25 arc from Ø30 circle and centre line to plot centre [1]
 R25 drawn [1]
 Arc drawn touching both circles [1]
 Line from square extended 35 at 45° [1]
 Box drawn in proportion on extended line [1]
 WEB and WIDE added in Upper Case [1] [10]
- (i) Four more process boxes added [1]
 Process boxes all of the correct shape and consistent width [1]
 Correct text added to each box
 Box 1 [1]
 Box 2 [1]
 Box 3 [1]
 Box 4 [1]
 End box added consistent with start box [1] [7]
- (ii) For example:
Where ?
 A decision box would be added between stage 2 and 3 or 4 and 5 [1]
Why ?
 to show alternative routes from process / flow of chart [1] [2]
*decision box evident in flow chart **
- (c) Sketches and/or notes show:
 Axle [1]
 Handle to provide rotary motion [1]
 Any cam producing an up and down motion on person [1]
 A suitably shaped cam (not crank) [1]
 Cam follower on middle person (shaft) [1]
 Design proposal will move the middle person up and down when handle is turned [1] [6]

[Total: 25]