

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge Ordinary Level

## **MARK SCHEME for the October/November 2015 series**

### **7048 CDT: DESIGN AND COMMUNICATION**

**7048/01**

Paper 1, maximum raw mark 80

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- 1 (a) (i) Diameter of cap correct to overlay [1]  
Width of cap correct to overlay [1]  
Length of gap between tube and cap [1]  
Diameter of gap between tube and cap to overlay [1]  
Overall length of tube and cap correct to overlay [1]  
Tapered part of tube (length and diameter) correct [1]  
Flat end of tube added (overlay or candidate solution) [1] [7]
- (ii) Circle added to show the cap [1]  
Circle of the correct size (30 mm) [1]  
Lines added to the left to show tube widening at the end (correct to overlay) [1] [3]
- (b) Specification points must be for the **material** used to make the **tube**, not the toothpaste.  
They might include:
- Must be flexible so it can be squeezed
  - Must be able to print on it
  - Must contain the paste (accept waterproof)
  - Must be hygienic
  - Mouldable
  - Can be recycled
- One mark for each appropriate point [1 × 2] [2]
- (c) Toothpaste shown coming out of tube [1]  
Bristles added to the brush [1]  
Style the same as that given (basic outline drawing) [1] [3]
- (d) Circle drawn of any size [1]  
Circle correct to overlay Ø60 mm [1]  
Top circle correct to overlay Ø60 mm or candidate response [1]  
Distance between top and bottom circle correct (20 mm) [1]  
(90° / 60° / 45° / 30°)  
Two lines added to join top and bottom circles [1] [5]
- (e) Two similar size sides (to the ones given) added [1] + [1]  
Top, of an appropriate size [1] added in the correct position [1]  
A glue tab added to the long side of the given surface [1]  
At least one fold in flap added to the bottom [1]  
At least three fold in flaps added to the top [1]  
Correct use of fold lines - - - - - and solid lines----- [1] [8]
- (f) One mark for the **reason** and one mark for the **explanation**. For example:
- Use recycled card [1] so that less trees are cut down [1]
  - Add a recycling symbol [1] so that people put the card in a recycling bin and it is used to make something else [1]
  - Biodegradable (non-toxic) [1] does not pollute soil [1]
  - Vegetable ink [1] renewable source [1]
- Do **not** accept 'use less card' [2]

[Total: 30]

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- 2 (a) \*Length of isometric bottle (80 mm) [1]  
\*Width of isometric bottle (30 mm) [1]  
\*Height of isometric bottle (80 mm) [1]  
25 mm taper [2]  
Square cap (any size) [1]  
Square cap centrally positioned [1]  
Cap 25 mm high [1]  
\*No marks for 2D drawings and only award the first three marks for non-isometric 3D drawings [8]
- (b) Ø40 mm circle drawn [1]  
Top point correct to overlay (from given centre lines) [1]  
R80 joins 40 mm circle to top point (award to overlay or candidate solution) [1]  
R60 joins 40 mm circle to top point (award to overlay or candidate solution) [1] [4]
- (c) Acceptable answers include:
- *Manufacturer's name / trademark*
  - *Manufacturer's contact details (website, address, phone number...) / country of origin*
  - *Recycling symbols*
  - *Fragrance / flavour*
  - *Alcohol content*
  - *Contents (ml or fl.oz.)*
  - *Slogan / logo for men / for women*
- One mark for each point [1 × 2] [2]
- (d) Digital printing  
*No marks for ticking two boxes. X instead of a tick is acceptable* [1]
- (e) Part b drawn the correct shape (square at 90° to part a) [1]  
Slot of appropriate size added to part b [1]  
Slot in part b in alignment with tab on part a [1]  
Outside shape of part c drawn [1]  
Outside shape of part d drawn at right angles to part c [1]  
Part c and d slot together (regardless of shape) [1]  
Part b drops into a recess in parts c and d [1]  
Part b aligned with recesses in part c and d [1]  
*No marks if not exploded* [8]
- (f) Reasonable attempt to add thick lines to the outer edge [1]  
Thick lines to shoulder [1]  
And bottom edge of tennon [1] [3]
- (g) Craft knife / Stanley knife / scalpel [1]  
Safety rule / metal rule / steel rule [1] [2]
- (h) The two marks are for **what** and **how**. For example:  
*You could check the size of each piece [1] by measuring it with a rule [1]*  
*You could check the finish on the edges [1] by looking at them closely [1]* [2]

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- 3 (a)** Semi octagon drawn of any size [1]  
Horizontal top (40 mm) to overlay [1]  
Right 45 degree line any length [1]  
Left 45 degree line any length [1]  
Right and left uprights to given end of bed [1]  
Base line added to candidate solution [1]  
Half octagon shape lined in [1] [7]
- (b) P1**  
Arc drawn [1]  
Arc of the correct size and from the correct centre [1] [2]
- P2**  
Arc drawn [1]  
At least three positions on the arc correctly shown (linked to right part) [1]  
Points plotted project the correct path down to horizontal position [1]  
P2 Joined with a smooth curve [1] [4]
- (c) Side view**  
Major axis of 60 mm [1]  
Minor axis of 40 mm [1]  
Some construction evident [1]  
Four points correctly plotted [1]  
Or more than four points correctly plotted [1]  
Profile correct to overlay [1] [6]
- Left angled end added [1]  
Left angled end matches the plan [1] [2]
- Plan**  
Right horizontal and vertical line of ellipse [1]  
Left horizontal and vertical line of ellipse [1]  
Right (crease) angled edge [1]  
Centre lines (x2) made solid [1] [4]
- [Total: 25]

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- 4 (a) Appropriate colour or pencil used (grey or blue) [1]  
Some shading added [1]  
Shading shows a reflective, transparent surface [1] [3]
- (b) (i) Lines projected back at approximately 45 degrees [1]  
Outer parallelogram completed with rounded corners [1]  
Two parallelogram pots added to the top surface [1]  
Ellipse added to top surface [1]  
Inside detail of circle [1] and rectangles shown [1] [6]
- (ii) **Plan**  
Three circles added [1]  
Three circles in the correct position [1]  
Triangle added [1]  
Equilateral triangle [1]  
Triangle in the correct position [1] [5]
- Side view**  
Horizontal line for side view (length matches the plan) [1]  
Two rectangles drawn in good proportion beneath the horizontal line [1] [2]
- (c) Appropriate scales used on the X and Y axis [1]  
Appropriate labels used on the X and Y axis [1]  
Points correctly plotted:  
  - One point [1]
  - Two points [1]
  - Three points [1]
  - Four points [1]
Points joined together with a line [1] [7]  
*Bar Chart = first two marks only*  
*Pie Chart = Zero (0)*
- (d) **Meaning**  
The symbol identifies a plastic (PVC) [1]  
(Accept it is PVC)  
**Why?**  
It is needed so that the type of plastic can be identified for recycling [1] [2]

**[Total: 25]**

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- 5 (a) One mark for each part named correctly
- 1. Segment [1]
  - 2. Sector [1]
  - 3. Diameter [1]
  - 4. Radius [1]
  - 5. Tangent [1]
- [5]
- (b) Triangle [1] Isosceles [1]  
Hexagon [1]  
Parallelogram [1]
- [4]
- (c) Given wheel divided into 8 [1]  
  Or 12 [1]  
Centre line divided into 12 [1]  
12 Divisions projected horizontally from given wheel [1]  
Circles or arcs drawn – 6 or less [1]  
  More than 6 [1]  
Points plotted – 6 or less [1]  
  More than 6 [1]  
Plots joined to form any path [1]  
Path of point P correct to overlay [1]
- [10]
- (d) Hatching added to the wheel [1]  
Hatching added to the back board [1]  
Hatching 45° in different directions and axle not hatched [1]
- [3]
- (e) Method appears to work [1]  
Method clearly works [1]  
Communication – candidates have used sketches and notes to good effect [1]
- [3]

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- 6 (a) At least three process boxes of the correct shape [1]  
 Five process boxes of consistent shape and width with start box [1]  
 1 mark for number of stages in the correct places:  
 • One stage in the correct place [1]  
 • Two stages in the correct places [1]  
 • Three stages in the correct places [1]  
 • Four / five stages in the correct places [1]  
 End (or finish) box added of correct shape [1]  
Number / Green button can be reversed [7]
- (b) (i) Rectangle completed of correct length [1] and height [1]  
 Two diagonals added [1]  
 R10 curve added [1]  
 Gaps between diagonals and R10 arc [1] [5]
- (ii) Circle of correct size (R35 mm) added [1]  
 Two arcs added (R40 mm – estimated length) [1]  
 Two 45 degree lines added from centre of circle [1]  
 Horizontal line added to base (overlay of candidate solution) [1] [4]
- (c) Front in perspective [1] and proportion [1]  
 Side in perspective [1] and proportion [1]  
 Screen in perspective [1] and proportion [1]  
 Buttons 3 × 5 in rectangle [1]  
 Buttons reducing in size [1]  
 Rounded corners [1] [9]
- [Total: 25]**