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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CAMBRIDGE
International Examinations

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]

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]

[Total: 30]

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 (×2) made solid [1] [4]

[Total: 25]

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]

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]

[Total: 25]

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]