

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge Ordinary Level

## **MARK SCHEME for the October/November 2014 series**

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

**7048/01**

Paper 1, maximum raw mark 80

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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- 1 (a) (i) TABLE **added** (lower or upper case in any size/position) [1]  
 TABLE added in correct **position** and in **capitals** [1]  
 All letters of a **height consistent** with the given T [1] [3]
- (ii) Right half of table top added in good proportion [1]  
 Some attempt at drawing A+B [1]  
 Well-proportioned drawing [1] [3]
- (iii) Part A and part B of the base drawn assembled [1]  
 Part A and part B shown exploded [1]  
 Part B shown sliding into part A slots aligned [1] [3]
- (iv) Appropriate colour added (brown, orange or yellow) [1]  
 Any grain shown [1]  
 End grain (annual rings) matches side grain [1] [3]
- (b) The function of the instruction leaflet is to communicate information. Accept, show how to put it together, show the parts... but **not** assembly instructions as this in the Q1 (a) [1]
- (c) Paper weight – 80gsm to 160gsm (or g/m<sup>2</sup>) [1]  
 Printing method – photocopying, laser printer, ink jet [1] [2]
- (d) (i) **\*Front view**  
 Base 100 high [1]  
 Base 80 wide [1]  
 Base tapered to 40 at the top [1]  
 Edge of second base drawn [1] to width of 4 [1]  
 Top 120 wide [1] and 4 thick [1]
- Brackets**  
 At least one bracket shown (side or front) [1] [8]
- \*for correct interpretation of shape but totally wrong sizes award a maximum of 3 marks – base tapered, edge of second base drawn and thickness to top
- (ii) **Plan**  
 Any circle drawn [1]  
 Circle Ø120 [1] [2]
- \*candidates who turn the base through 45 degrees must be allowed to score maximum marks
- (e) Truncated cone drawn [1]  
 Two concentric circles match the truncated cone [1]  
 First angle projection symbol (correct orientation) [1] [3]
- (f) 20 [1]  
 12 [1] [2]

[Total: 30]

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- 2 (a) Overall height correct (200) [1]  
Overall width correct (250) [1]  
Two radii present [1]  
Two accurate radii [1]  
Length of head [1]  
Two accurate radii [1]  
Cut out between legs correct to overlay mark for width [1]  
Height [1]  
Two radii [1]  
Cut out between front leg and trunk correct to overlay or candidate solution width [1]  
Height [1]  
Diameter 20 semi circle [1] [12]
- (b) One mark for each appropriate method (Velcro, double sided tape, glue, sticky pads, silicon, latex, contact adhesive) [1 × 2] [2]
- (c) Felt tipped pen, China graph pencil, marker pen, whiteboard marker or highlighter. [1]
- (d) Some rendering added to the pen [1]  
Gradation shows an attempt to make surface appear round [1]  
High quality rendering with reflective surface shown [1] [3]
- (e) There a number of potential solutions to this question but most will involve ‘rolling’ or ‘drilling’  
Answer shows a method of holding the pen but does not take account of the fact that the elephant shape is attached to a wall (typically a hole) [1]  
Or  
Answer shows a method of holding the pen [1] and does take account of the fact that the elephant shape is attached to a wall (typically ‘rolling’ or bending the end and drilling) [1] [2]  
Sketch in isometric and correct plane [1]  
Sketch includes thickness and curves [1] [2]
- (f) Front and back drawn to the width of the base [1]  
Lid added approximately the same size as the base [1]  
Two sides added [1]  
Two sides added with same width as front/back [1]  
Four working glue tabs added [1]  
Fold in flap added [1]  
Fold lines shown in correct or similar convention [1]  
Hole for eye in the correct quarter (four possible solutions) [1] [8]

[Total: 30]

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3 (a) (i) Cylinder or cylindrical [1] [1]

(ii) Triangular prism [1]  
Hole for candle in top [1]



Hexagonal prism [1]  
Hole for candle in top [1]



Cone [1]  
Truncated cone [1]  
Hole for candle in top [1]



[7]

(b) (i) **Plan**

Outer square drawn [1]  
Correct size and position [1]  
Inner square drawn [1]  
Correct size and position [1]  
At least one line drawn to link the corners of the outer and inner squares [1]  
All four lines clearly shown [1]

[6]

(ii) **True shape of surface X**

Two lines projected at right angles to surface X on the front view or compass method [1]  
Top width correct to overlay [1]  
Bottom width correct to overlay [1]  
Shape lined in to overlay or candidate's solution [1]

[4]

(c) Bottom edge drawn to VP2 and equal in length to given base line [1]

Vertical line drawn in proportion [1]  
Two sloping lines drawn in proportion [1]  
Top four lines to VP1 & VP2 [1]  
Top smaller than base [1]

Recess for candle drawn [1]  
Good quality ellipse (bottom edge not required) [1]

If the candle holder is drawn in the incorrect proportions (too tall), the last two marks for the ellipse cannot be awarded as the top surface will not be seen. [7]

**[Total: 25]**

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- 4 (a) (i) **Card A**  
X and Y linked by a mechanism [1]  
Pivots labelled [1]  
Mechanism works (push/pull mechanism) [1] [3]
- (ii) **Card B**  
\*Centre pivot or any slider [1]  
Disc drawn or slider appropriate size & works [1]  
Arrow/s show rotational movement [1] [3]  
\*accept solutions that slide but only award maximum marks if the strip is long enough
- (iii) **Card C**  
Z, X and Y linked by a mechanism [1]  
Fixed pivots labelled [1]  
Moving pivot labelled [1]  
Mechanism works [1] [4]
- (b) (i) Three equal width bars [1]  
Suitable scale used (probably 1000 to 10 mm) [1]  
Data correctly plotted [1]  
Both axes labelled [1]  
Colour used to enhance the bar chart [1] [5]
- (ii) One mark for each method of data presentation up to 2 marks. For example, pie chart, line graph, pictograph, histogram [2 × 1] [2]
- (c) (i) Base drawn of correct length (60 mm) [1]  
Base drawn to the correct width (40 mm) [1]  
Back drawn of correct height (40 mm) and joining base [1]  
Any pop-up drawn [1]  
A pop up drawn to size (any position) [1]  
Pop-up drawn in correct position [1] [6]
- (ii) There are two alternatives pop-up cut out  
Pop-up added (separate piece)  
Some thick lines added [1]  
Thick and thin lines added correctly [1] [2]

[Total: 25]

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**5 (a) Base**

- Any square base drawn in planometric [1]
- Base the correct size (50 mm × 50 mm) [1]
- Thickness added [1]
- Thickness of top and inside line drawn accurately [1] [4]

**Large square tube**

- Large square tube drawn in planometric and correct position [1]
- Large tube of correct height [1]
- 23 mm square (plus or minus 2 mm) [1]
- Thickness shown [1]
- Inside detail shown [1] [5]

**Small square tube**

- Small square tube drawn in planometric and correct position [1]
- Small tube of correct height [1]
- 23 mm square (plus or minus 2 mm) [1]
- Thickness shown [1]
- Inside detail shown [1] [5]

Do **not** award the first mark in each group if in isometric or 30/60 planometric (maximum mark 11)

Orthographic gets height and position marks only (max 3)

**(b) Tray drawn (accept sketch or instruments) [1]**

- Large square tube drawn horizontally [1]
- Large square tube in position in the tray (may be shown by arrows) or 'hovering' above [1] [3]

Tray drawn with large square tube horizontal [1]

- Small square tube drawn horizontally [1]
- Small square tube in position in the tray (may be shown by arrows). Complete end must be visible if placed in position [1] [3]

**(c) 100 mm**

- 50 mm (plus or minus 2 mm) [2]

**(d) Hatching to tray correctly added [1]**

- Hatching to small tube correctly added [1]
- Hatching in different orientation/spacing/angles [1] [3]

**[Total: 25]**

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- 6 (a) Approximate shape of arms drawn [1]  
 Arms symmetrical around the centre line [1]  
 Proportion (long arms) [1] [3]
- Chest 'V' drawn [1] [1]
- Approximate shape of legs drawn [1]  
 Legs symmetrical around the centre line [1] [2]
- (b) Front view**  
 Any Pentagon drawn [1]  
 Regular pentagon [1]  
 Pentagon constructed\* of the correct size (overlay) [1]  
 Pentagon in the correct orientation [1] [4]
- \*Construction by protractor or using the length of one side
- Plan**  
 Plan projected from the front view (Outer two lines) [1]  
 Inner two lines/centre line [1]  
 Height of plan correct (10 mm) [1] [3]
- (c)** Correct colours used (black/white/grey/blue) [1]  
 Some shading present [1]  
 Gradation makes bar appear round [1]  
 Appropriate shading applied to top [1] [4]
- (d)** Major axis correct length (100) and vertical [1]  
 Minor axis correct length (60) and horizontal [1]  
 Some construction evident [1]  
 Most construction present [1]  
 All construction clearly visible [1]  
 Minimum of 6 points correctly plotted [1]  
 7 or more points correctly plotted [1]  
 Profile accurately drawn to overlay [1]
- \*Solutions drawn in the wrong orientation can be awarded the last 6 marks [8]

**[Total: 25]**