

**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

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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]

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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]