

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

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

### **0445 DESIGN AND TECHNOLOGY**

**0445/22**

Paper 2 (Graphic Products), maximum raw mark 50

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- A1 (a)** Isometric drawing (1)  
Block 60 mm square (1) and 20 mm high (1)  
30 mm square in centre position (overlay or candidate solution) (1)  
Square 15 mm vertically above (overlay or candidate solution) (1)  
Tapered sides to O/L (1)  
Circle added (1)  
Isometric circle (could be freehand) (1)  
Isometric circle correct to overlay (1) [9]
- (b)** Two vertical lines added (corners of switch) (1)  
Curved line to front bottom of switch (1) [2]
- A2 Material**  
Styrofoam (award mark for naming another specific material such as MDF, card etc., no marks for generic terms) (1)
- Reasons*  
(One mark for each acceptable answer that relates to the specific material named) (1 × 2)  
For Styrofoam:
- easy to shape (1)
  - accepts a paint finish (1) [3]
- A3 (a) Front view**  
Top and R/H vertical lines added (1)  
Right half of tab completed (1)
- Plan**  
Horizontal and vertical line to overlay (1)  
Circle evident in hidden detail in plan (1) [4]
- (b)** Four connected surfaces drawn (1)  
End surface the largest and the smallest surface two away from largest (1)  
Glue tab added to correct end (1)  
All fold lines shown by dashed lines or labels (1)  
Hole evident on the correct surface (next to the largest surface) (1)  
\*ignore the slot and accept answers drawn either way around [5]
- (c)** One mark for stating a reason or identifying a feature (1)  
One mark for explaining why it is considered environmentally friendly (1)  
For example:
- *The package is made from recycled / unbleached card (1) so trees do not need to be cut down (1)*
  - *The ends have been left open (1) so the minimum amount of card is used (1)*
  - *Using vegetable based ink (1) reduces use of crude oil/fossil fuels (1)* [max 2]

**[Total 25]**

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- B4 (a)** Vertical line drawn to show back edge of left end (1)  
 Top of left end drawn to VP1 (1)  
 Two uprights for right end completed (1)  
 Top inner edge of right end drawn to VP1 (1)  
 Bottom inner edge of right end drawn to VP1 (1)  
 Inner back vertical (1), correct height (1)  
 Top edge of back drawn to VP2 (1)  
 Bottom edge of back drawn to VP2 (1)  
 Overall drawing in good proportion and correctly lined in (1) [10]

- (b)** Colour added to surfaces (brown/yellow) (1)  
 Grain shown on the top surface (1)  
 Side grain matches top surface (correct direction) (1)  
 End grain matches the side grain (1) [4]

- (c)** For example:  
**Design**  
*Open a programme such as Word (1)*  
*Select a font (1) with an outline profile (1)*  
*Type in the letters (1)*  
*Adjust to the correct size (1)* [5]

- Manufacture**  
*Load vinyl in to the plotter cutter (1)*  
*Send design to plotter cutter (1)*  
*Knife cuts out the shape (1)* [3]

- Apply**  
*Used transfer film to lift design from vinyl sheet (1)/weeding (1)*  
*Smooth on to the surface of the wooden block (1)*  
*Peel-off transfer film (1)* [max 3]

\*hand methods of cutting out of letters are likely to be restricted to 5 marks (draw, correct size, cut out, peel-off backing and stick in place)

**[Total 25]**

- B5 (a) (i)** Major axis 66 mm (1)  
 Minor axis 40 mm (1)  
 Some construction (1) or clear construction (2)  
 Six or less points plotted (1) or seven or more points plotted (2)  
 (Trammel evident or attached if used)  
 Ellipse profile correct to overlay (1)  
 Ellipse in the correct orientation (1) [max 8]

- (ii)** Any N and E added (1)  
 N or E added in the same style as given letters (1)  
 N and E to the correct height and with appropriate spacing (1) [3]

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- (b) High (1)  
Density (1)

AND

One mark for identifying the 'information' in a drawing and two marks for explaining why it is included on the bottle. For example:

- *A bar code (1) is added so that the product can be scanned at the till to find out the price (1) stock control (1)*
- *The contents are included (1) so that people can check there is nothing they are allergic to (1) and can use it safely (1)*
- *Manufacturer's name (1) is included so you remember the product (1) and buy the same again (1)*
- *Volume or weight (1) to give customer information on contents (1) and value (1)*

Other answers might refer to quantity, expiry date or health and safety. [max 8]

- (c) Three bars drawn (1)  
Scale used on the vertical axis (1)  
Labels used on the horizontal axis (1)  
One or two bars plotted correctly (1), or three bars plotted correctly (2)  
Appropriate colour used to enhance the illustration (1)

[max 6]

**[Total 25]**