

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0445 DESIGN AND TECHNOLOGY

0445/21

Paper 2 (Graphic Products), maximum raw mark 50

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A1 (a) End view

- Left upright and top correct to overlay [1]
- Top of bonnet and bottom of windscreen to overlay [1]
- Left half of windscreen added [1]
- Curves to corners of windscreen [1]

Plan

- Front vertical and horizontal line correct to overlay [1]
- Top of roof and bottom of windscreen to overlay [1]
- Windscreen added [1]
- Curves to corners of windscreen [1] [8]

- (b) Truncated cone added [1]
- Truncated cone matches end view and in correct orientation [1] [2]

- A2 (a)** Headlight of the correct size added in the correct position [1]
- Three bars the correct length, width and position [1] [2]

- (b) Some attempt to show a reflective surface [1]
- High quality rendering using an appropriate colour [1] [2]

- (c) Zero added [1]
- Zero the correct style and size [1] [2]

- A3 (a)** Second side drawn [1] accurately and in correct orientation [2]
- Front surfaces completed [1]
- Back of the correct size and position drawn [1]
- Sufficient glue tabs to hold the model together (must have fold lines) [1] [5]

- (b) Drawing of a safety rule [1]
- Craft knife or Stanley knife [1] [2]

- (c) Example
- Method: double sided tape [1]
- Reason: No mess, sticks instantly... [1]
- Accept answers such as glued tab and PVA but check the reason is valid [2]

[Total: 25]

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- B4 (a) (i)** Horizontal base line added [1]
 Base line the correct length [1] and distance from centre line [1]
 Two vertical ends added [1] (regardless of position or height)
 Two vertical ends the correct height [1] and distance from centre line [1]
 Horizontal top line added [1]
 Top line the correct distance from the centre line [1]
 Top semi-circle the correct radius [1] and position [1]
 Arcs between top line and circle drawn to correct radius [1] and smoothly join horizontal line and semi-circle [1] (to overlay or candidate solution) [12]
- (ii)** Major axis 100 mm [1]
 Minor axis 60 mm [1]
 Some construction visible [1] or clear construction visible [2]
 (award if major and/or minor axis incorrect)
 At least four points correctly plotted [1] or more than six points correctly plotted [2]
 (award if major and/or minor axis incorrect)
 Profile correct to overlay [1] [7]
- (b)** Sketches and notes (or labels) show:
 A method that will join the two ends of card (could be glue) [1]
 Method does not use glue (probably 'slotting' of some kind) [1]
 Method will not pull apart [1] [3]
- (c)** Sketches and notes (or labels) show:
 A method that will add some strength to the thin card (possible using thicker material or reinforcing a particular part) [1] or
 A specific method, such as laminating or clear book film, that applies to the entire design [2]
 Sketches and notes clearly show the strengthening method [1] [3]

[Total: 25]

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- B5 (a)** Any cuboid drawn [1]
 Sketch of a cuboid of a high quality (3D and parallel lines) [1]
 Cylinder or cylindrical [1]
 Triangular prism drawn [1]
 Sketch of a triangular prism of a high quality (3D and parallel lines) [1]
 Hexagonal prism drawn [1]
 Sketch of a hexagonal prism of a high quality (3D and parallel lines) [1] [7]
- (b)** Four equal width bars [1]
 Suitable scale used (probably 1000 to 1 mm) [1]
 Data correctly plotted [1]
 Labels identify bars 1, 2, 3 and 4 [1]
 Colour or shading used to enhance the bar chart [1] [5]
- (c)** Mark to overlay (award if box drawn on end)
 Isometric [1]
 *Overall height (20 mm) [1]
 *Overall width (50 mm) [1]
 *Overall length (70 mm) [1]
 End surface to overlay (or candidate solution) [1]
 Edge surface to overlay (or candidate solution) [1]
 Top surface to overlay (or candidate solution) [1]
 *Window correct width [1] and length [1]
 Window in correct position (to overlay or candidate solution) [1]
 *Award only these marks if 3D but not isometric [10]
- (d)** Lithography or digital printing [1]
 Cardboard, carton board... (not paper) [1]
 Acetate, polythene... (not plastic) [1] [3]

[Total: 25]