

**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

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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Page 2	Mark Scheme	Syllabus	Paper
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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]**

Page 3	Mark Scheme	Syllabus	Paper
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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]**

Page 4	Mark Scheme	Syllabus	Paper
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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]**