MARK SCHEME for the October/November 2014 series

0445 DESIGN AND TECHNOLOGY

0445/22 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]
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]
(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]