

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the May/June 2015 series**

### **0445 DESIGN AND TECHNOLOGY**

**0445/23**

Paper 2 (Graphics Products), maximum raw mark 50

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### Section A

- A1 (a) (i) Plan**  
 Circle added [1]  
 Circle correct to overlay [1]  
 Rectangle added for the left arm [1]  
 Rectangle correct to overlay [1] [4]
- (ii) Front View**  
 Right arm peg/hole correct to overlay (ignore type of line) [1]  
 Leg peg/hole correct to overlay (ignore type of line) [1]  
 All lines dashed regardless of size or position [1] [3]
- (iii) Two concentric circles added [1]**  
 Truncated cone matches the concentric circles [1]  
 Circles and truncated cone in correct positions and orientation for third angle projection (cone on right) [1] [3]
- A2 (a) Some tonal shading adding to the circle [1]**  
 Shading makes the circle appear spherical (high and low light) [1] [2]
- (b) Sketches and notes (or labels and arrows) show understanding that:**  
 A stencil is a sheet of material with cut out shapes for the letters [1]  
 A pen or pencil is put into the cut out shapes and the letter drawn [1] [2]
- A3 (a) Dome drawn to the right [1]**  
 Flat added to the right side of the dome and left side of cuboidal chamber [1]  
 Top added to the cuboid shape [1]  
 Sloping side added to the left of the cuboid shape [1] [4]
- (b) Three features of the former described. Tick (✓) to identify each feature. For example:**
- Sloping sides (draft) [1]
  - Smooth surface finish [1]
  - Strength to withstand suction [1]
  - Correct shape [1]
  - Quality of materials
  - Heatproof former etc. [3]
- (c) (i) Triangular shape drawn [1]**  
 Arrows added to the triangular shape [1] [2]
- (ii) Typical answers:**  
*It is better for the environment [1] because fewer trees need to be cut down [1]*  
*Better for the environment [1] because less landfill is required [1]*  
*It is better for the image of the company [1] as it makes them appear environmentally friendly [1]* [2]

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### Section B

- B4 (a) (i)** Any circle drawn [1]  
 Circle of the correct size ( $\varnothing 30$ ) [1]  
 Circle position (on the given Centre line) [1] [3]
- (ii)** Any triangle drawn [1]  
 Equilateral triangle drawn [1]  
 Equilateral triangle of correct size drawn (side 30 mm) [1]  
 Triangle position (on the given Centre line) [1]  
 Triangle in the correct orientation [1] [5]
- (iii)** Any Hexagon drawn [1]  
 Regular hexagon drawn [1]  
 Regular hexagon of the correct size drawn (side 20 mm) [1]  
 Hexagon position (on the given Centre line) [1]  
 Hexagon in the correct orientation [1] [5]
- (b)** Circle drawn [1]  
 Circle divided into any four sectors [1]  
 One mark for each sector correct to overlay (1 × 3)  
 Appropriate identification used (at least three sectors) [1]  
 Appropriate labels for sales used (at least three sectors) [1] [7]
- (c) (i)** Aided, Aid or Assisted [1]  
 Design [1] [2]
- (ii)** Tick (✓) to identify the following stages:  
 • Highlight or Right click on image [1]  
 • Menu –Copy [1]  
 • Cursor to new page / program [1]  
 • Menu –Paste / click to position [1]  
 (or alternative methods of copying and pasting) [3]

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### Section B

- B5 (a) (i)** Card or paper [1]  
Expanded polystyrene [1] or polystyrene foam  
(Do not accept 'foam') [2]
- (ii)** Scalpel, blade, craft knife or Stanley knife [1]  
(Do not accept 'knife')  
Steel rule, Safety rule [1]  
(Do not accept 'rule') [2]
- (iii)** Example [1] Justification [1]  
e.g:  
Easy to cut / so shapes can be made easily  
Has a smooth surface / that you can print pictures on  
Rigid / so easy to slot pieces together  
Has thickness / so easy to pick up  
(Do not accept 'cheap') [2]
- (b)** Any enlarged cross [1]  
Enlarged cross has four correct elements (to overlay) (4 × 1)  
Evidence of a V.P. (1)  
Projection lines from V.P. to enlarged cross (4 × 1) [10]
- (c)** Isometric drawing [1]  
Length (70 mm) allow if isometric incorrect [1]  
Width (70 mm) only if isometric correct [1]  
\*Height (10) [1]  
\*Inner square drawn to top surface [1]  
Inner square correct to overlay [1]  
\*Some depth drawn to the inner square [1]  
Right side depth of inner square correct to overlay [1]  
Left side depth of inner square correct to overlay [1] [9]
- \* marks can be awarded for non-isometric 3D solutions

**[Total: 25]**