## International General Certificate of Secondary Education

<table>
<thead>
<tr>
<th>MARK SCHEME</th>
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<tbody>
<tr>
<td>MAXIMUM MARK: 75</td>
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<tr>
<td>SYLLABUS/COMPONENT: 0445/02</td>
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<tr>
<td>DESIGN AND TECHNOLOGY</td>
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<tr>
<td>Communication</td>
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</tbody>
</table>
A1. Hexagonal hole 30 side 2
    Diamond hole 50 x 60 2
    Equilateral triangle hole 50 side 2
    Semi-circular hole Ø60 2
    Rectangular hole 50 x 40 1 9

A2. Accuracy and proportion of:
    K 1
    I 1
    N 1
    G 1
    Height 1
    Spacing 1 6

A3 (i) Width 1
    Overall Height 1
    Height to top of shoulder 1
    30 x 5 recess 1
    R15 curve 1
    Thickness on curve 1 6

(ii) Thick line applied:
    All outside edges (Pr 1-2) 2
    Top edge of 30 x 5 recess 1
    Back shoulder 1 4

25

B4 (a) Wheel:
    width 1
    height 1
    angle 1
    ends 1
    position 1 5

(b) semi-octagon:
    length of side 48 / 50 +/- 2mm 1
    construction 1 + 1 2
    accuracy of semi-octagon 2 5

(c) semi-ellipse:
    correct orientation 1
    suitable construction 1 + 1 2
    accuracy of construction 1
    outline (constructed) 1 5

(d) Two inner arcs:
    joins to semi-circle 1
    construction 1 + 1 2
    R55 1
    accurate line (even if not constructed) 1 5
<table>
<thead>
<tr>
<th></th>
<th>construction evident</th>
<th>overall height of rectangle</th>
<th>triangle added</th>
<th>circle touching sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
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</table>

### B5 (a) EV

<table>
<thead>
<tr>
<th></th>
<th>1st angle projection</th>
<th>in line from plan</th>
<th>overall height</th>
<th>angle of top</th>
<th>position of slot</th>
<th>size of slot</th>
</tr>
</thead>
<tbody>
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</table>

#### PLAN

<table>
<thead>
<tr>
<th></th>
<th>pentagon correct size</th>
<th>orientation</th>
<th>accuracy (Pr 1-2)</th>
</tr>
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<tbody>
<tr>
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### (b) Development Top:

<table>
<thead>
<tr>
<th></th>
<th>T/L of top taken from EV</th>
<th>projection</th>
<th>width</th>
<th>accuracy (Pr 1-2)</th>
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<tbody>
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#### Development sides:

<table>
<thead>
<tr>
<th></th>
<th>two long sides (2 x 1)</th>
<th>two short sides (2 x 1)</th>
<th>slot position</th>
<th>slot size</th>
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<tr>
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### (c) sketch of support

<table>
<thead>
<tr>
<th></th>
<th>looks like a pentagon</th>
<th>satisfies brief</th>
<th>has fold down flaps</th>
<th>quality of sketch (0 - 1)</th>
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|   | 25 |
The following worked answers represent a typical candidate answer giving the style of response expected to gain full marks and not necessarily a 100% perfect answer.
Section A

Answer all questions in this section.

A1 A child's shape sorter box is shown below with one of the six shape holes drawn in position.

The full-size plan view of the shape sorter box, with one shape completed, is drawn to the right.

Complete the full-size plan view of the shape sorter box by drawing in the spaces provided:

- a regular hexagon side 30;
- a diamond 50 x 60 diagonals;
- a rectangle hole 50 x 40;
- a semi-circle Ø60;
- an equilateral triangle side 50.

A2 An incomplete road sign for PARKING is drawn to the right.

Complete the road sign by adding the four remaining letters. All the letters must be the same height and style as those given.

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Proportion of:

height (1)

spacing (1)
A support post for a temporary barrier is drawn to a scale of 1:10 in the orthographic views given to the left.

In the space given to the right:

(a) Sketch freehand, an isometric view of the support post. The sketch should be to the same scale and all sizes should be taken from the given orthographic views. [6]

(b) Apply the thick and thin line technique to enhance your isometric sketch. [4]
Section B

Answer either question B4 or question B5.

B4 A National car museum uses an illustration of an old car as its logo, as shown in the sketch below.

Complete the full-size drawing of the logo by:

(a) drawing the other wheel; [5]
(b) drawing the semi-octagon; [5]
(c) constructing the semi-ellipse; [5]
(d) constructing the two R55 inner arcs; [5]
(e) drawing the headlamp in position on the logo by enlarging the given drawing. [5]
Answer either question B4 or question B5.

B5 The sketch below shows a thin card packaging for a cosmetic product. The packaging has a window so that customers can see the product.

In the spaces indicated:

(a) draw to a scale of 1:2 in first angle orthographic projection, the view EV and the PLAN of the dispenser. [10]

(b) construct, to the same scale, a one-piece development of the packaging. Do not draw the base or any gluing or other flaps. Ignore the thickness of the card. [11]

(c) sketch a simple support, also made from thin card, which will be inserted in the packaging so that the base of the cosmetic product will be level with the edge T. [4]