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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE
Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.
Section A

1. Left to right: panel pin  round wire  oval wire  

2. 

<table>
<thead>
<tr>
<th>Product</th>
<th>Manufacturing process</th>
<th>Specific plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>sandwich container</td>
<td>Vacuum forming</td>
<td>Polythene, polystyrene, HIPS</td>
</tr>
<tr>
<td>electrical plug</td>
<td>Injection moulding</td>
<td>Urea formaldehyde</td>
</tr>
</tbody>
</table>

3. Award 0–3 dependent upon accuracy of sketch  

4. A four jaw  B three jaw or four jaw  C three jaw  

5. (a) Mild steel  
   (b) Brass  

6. (a) Hole saw/cutter  
   (b) Interchangeable cutters, 20–75 mm Ø holes, leaves solid washer  

7. (a) Corrosive substance  
   (b) Wear ear protection/defenders  

8. A Half-round file  
   B Square file  

9. Use of a try square, award only 1 mark as it would be difficult inside frame  
   Use of diagonal measurements shown from 2 corners with appropriate notes 2 marks  

10. Polypropylene injection moulding  
     Aluminium casting/die casting  

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Section B

11  (a) Tough, hard, durable, close-grained, straight-grained  

(b) (i) 3 parts: use of vice or jig to hold steel  
use of vice and/or former  
force using hammer/scrap wood or mallet  
(ii) Some form of ‘stopper’ to cover end of steel  
Technical accuracy of material, construction  
(iii) Araldite or generic epoxy resin/superglue  
(iv) Resin and hardener mixed in equal amounts  
application  

(c) (i) Between centres  
(ii) To make it easier to achieve round shape, prevent splitting wood  
(iii) Chisel, gouge, scraper  
(iv) [Outside] calipers  

(d) Screw shown  
2 washers shown in correct position  

(e) Male and female formers shown  
Layers of veneers shown clearly  
Method of clamping  

(f) (i) Varnish, preservative, paint  
(ii) 2 reasons include: to protect and preserve wood, keep clean, make attractive  

12  (a)  

<table>
<thead>
<tr>
<th>Process</th>
<th>Tools/equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark to length</td>
<td>pencil, rule, try square, marking knife</td>
</tr>
<tr>
<td>Saw to length</td>
<td>tenon saw, vibro saw, Hegner saw, coping saw, band saw, jig saw</td>
</tr>
<tr>
<td>Make surfaces clean and smooth</td>
<td>plane, glasspaper, cork block/rubber</td>
</tr>
</tbody>
</table>

© Cambridge International Examinations 2014
(b) | Process | Tools/equipment |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark to length</td>
<td>rule, try square, scriber</td>
</tr>
<tr>
<td>Saw to length</td>
<td>hacksaw</td>
</tr>
<tr>
<td>Make surfaces clean and smooth</td>
<td>Emery cloth, wet and dry (silicon carbide) paper, steel wool</td>
</tr>
</tbody>
</table>

\[(3 \times 1) \quad [3]\]

(c) Use of dowel, M&T or housing joint tee halving
Award 0–3 dependent on technical accuracy
Name of construction to correspond
\[(0–3) \quad (1) \quad [4]\]

(d) 2 methods: use a drilling jig or clamp the 2 pieces together and mark out as one piece
Accept use of tape, panel pins to indent. Use of marking gauge 1 mark
Award 0–2 dependent upon technical accuracy
\[(0–2) \quad [2]\]

(e) Accept any 2 from:
- chamfer end
- saw cut/s across end
- saw cut/s along length
\[(2 \times 1) \quad [2]\]

(f) (i) Smoothing or jack plane
\[1\]

(ii) Drawing of woodworkers vice
Wood positioned correctly
\[(0–2) \quad (0–1) \quad [3]\]

(iii) Disadvantage: lack of control/moves about
\[1\]

(g) 2 reasons include: to make attractive, to protect the material from... [qualified]
as a learning aid to colour recognition, cost effective, keep clean
\[(2 \times 1) \quad [2]\]

(h) Mallet to be 'stored' / held against musical instrument.
Use of hole/s for mallet to fit into/through or small bracket attached to instrument
Practical idea
Details of sizes, materials and constructions used
\[(0–2) \quad [4]\]

13 (a) (i) Chinagraph pencil, marker pen, felt tip, scriber
\[1\]

(ii) Dividers, compass with marker pen
\[1\]
(b) Hole drilled
Blade of coping saw, vibro saw or equivalent inserted and sawn
Use of file to make sawn edge smooth
Accept laser cutter: award up to 3 marks dependent on additional technical information [3]

(c)

<table>
<thead>
<tr>
<th>Tools/items of equipment</th>
<th>How they will be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scraper</td>
<td>To remove scratches along the edges of acrylic</td>
</tr>
<tr>
<td>Wet and dry (silicon carbide)</td>
<td>To produce a finer finish by rubbing along the edges of acrylic</td>
</tr>
<tr>
<td>paper</td>
<td></td>
</tr>
<tr>
<td>Polishing compound</td>
<td>This would be applied against the mop to produce a quality finish</td>
</tr>
<tr>
<td>Polishing mop</td>
<td>The work piece would be applied against the mop to produce a high quality finish</td>
</tr>
</tbody>
</table>

(4 × 1) [4]

(d) Methods include the use of acrylic blocks, brackets or discs cemented to the ends of the DVD stand into which the stainless steel tube will fit

Practical solution
Details of materials, sizes and constructions (0–2) [4]

(e) 2 ergonomic considerations include: ease of access/handling of DVDs
Ease of recognition of DVDs in stand, holes to assist lifting/moving DVD stand (2 × 2)
Thorough description required for maximum 2 marks for each consideration [4]

(f) Practical solution: fits onto rails
    moves along rails
    prevents DVDs falling over (0–2)
    details of materials and fittings (0–2) [6]

(g) Advantages include: more durable than acrylic, will not scratch as easily, easier to construct, greater variety of constructions available (2 × 1) [2]