

# Manufacturing Questions

4 (b) The table below lists six major operations to manufacture a brake lever. Complete the table by inserting the identification letter in the correct box. Choose from letters A to J.

[10 marks]

Order	Operation	Tools and Equipment	Description
1	Make the pattern	Coping/tenon saw, marking and measuring equipment, rasp, glass paper	
2	Cast the blank lever		
3	Machine the lever to correct size and tolerances		
4	Make holes for brake cable and ventilation		Secure workpiece in vice and drill holes
5	Deburr holes		
6	Finish surface		

Place lever into vice ensuring correct level. Remove excess material: **A**

Pillar drill  
Countersink bit: **B**

Abrasive sheets and buffing wheel: **C**

Cope/drag, split pattern, runner/riser, sprue, crucible: **D**

Mark out the correct shape onto MDF. Cut to size and finish to leave smooth edges and draft angle: **E**

Remove scratches and polish: **F**

Vertical milling machine  
Cutting tool  
Vice: **G**

Place pattern into casting boxes. Compact sand and remove pattern. Pour Aluminium: **H**

Centre punch  
Pillar drill  
5 mm twist drill  
Vice: **I**

Remove any sharp edges created by drilling the holes: **J**

# Answers

4	b	<p>The table below lists 6 major operations to manufacture a brake lever. Complete the table by inserting the identification letter in the correct box. Choose from letters A to K. Accept words and/or letters where correct [1 Mark for each correct answer MAX 10 marks]</p> <table border="1"> <thead> <tr> <th>Order</th> <th>Operation</th> <th>Tools/Equipment</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Make the pattern</td> <td>Coping/tenon saw, marking and measuring equipment, Rasp, glass paper L</td> <td><b>E</b></td> </tr> <tr> <td>2</td> <td>Cast the blank lever</td> <td><b>D</b></td> <td><b>H</b></td> </tr> <tr> <td>3</td> <td>Machine the lever to correct size and tolerances</td> <td><b>G</b></td> <td><b>A</b></td> </tr> <tr> <td>4</td> <td>Make holes for brake cable and ventilation</td> <td><b>I</b></td> <td>Secure workpiece in vice and drill holes <b>M</b></td> </tr> <tr> <td>5</td> <td>Deburr holes</td> <td><b>B</b></td> <td><b>J</b></td> </tr> <tr> <td>6</td> <td>Finish surface</td> <td><b>C</b></td> <td><b>f</b></td> </tr> </tbody> </table>	Order	Operation	Tools/Equipment	Description	1	Make the pattern	Coping/tenon saw, marking and measuring equipment, Rasp, glass paper L	<b>E</b>	2	Cast the blank lever	<b>D</b>	<b>H</b>	3	Machine the lever to correct size and tolerances	<b>G</b>	<b>A</b>	4	Make holes for brake cable and ventilation	<b>I</b>	Secure workpiece in vice and drill holes <b>M</b>	5	Deburr holes	<b>B</b>	<b>J</b>	6	Finish surface	<b>C</b>	<b>f</b>	10
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