

Question 1

a.)	<p>Expected answers</p> <ul style="list-style-type: none"> - Does not rust/corrode/ weatherproof/ non-ferrous - Does not require a finish - Easy to work with - Strong/robust - Durable/long lasting/ hardwearing - Acoustic qualities - Aesthetic reasons ('looks good') 	<p>Additional Guidance</p> <p>Ignore comments that do not answer the question or are repetitions.</p> <p>One mark for each correct response up to a maximum of two marks.</p> <p>References to cost score zero marks unless qualified.</p> <p>'Lightweight' scores zero marks as it is not a requirement of the wind chime part.</p>
b.)	<p>A description that could include some of the following:</p> <ul style="list-style-type: none"> • Secure the brass in a vice • Saw / cut the brass with a hack saw • File the rough edges left by the saw • Use a flat file to angle the edge at 45°. • Secure brass in the lathe. • Cut 45° angle on the lathe. • Create flat end using a file. • Mark position of the hole using a steel rule/ scribe / engineer's square. • Centre punch position of hole • Secure brass in machine vice and drill hole. • Remove burrs with file / abrasive paper. <p>Any other suitable response.</p>	<p>One mark per correct description up to a total of four marks.</p> <p>There are four key stages to the manufacture of this component:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chamfering end <input type="checkbox"/> Flattening surface <input type="checkbox"/> Preparing for drilling <input type="checkbox"/> Making hole <p>Alternative stages could be:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Marking out <input type="checkbox"/> Cutting bar to length <input type="checkbox"/> Facing off <p>One mark awarded for each stage where reference has been made to a suitable tool.</p> <p>The following examples score one mark each and give an indication of the level of response required:</p> <p><i>'Face off the bar using a lathe.'</i></p> <p><i>'Use a file to chamfer one end.'</i></p> <p><i>'Use the file to make the flat area on the other end.'</i></p> <p><i>'Mark out the position of the hole with rule and scribe.'</i></p> <p><i>'Drill the hole.'</i> (Assumed using a drill).</p>

Question 2

Expected Answers

Additional Guidance

a.) i.)

A—Taper turning
B— Parallel Turning
C—Knurling

Accept chamfering for A

ii.)

Change the lathe tool.
Reduce the speed of the lathe.

b.) i.)

Aluminium

Accept tin or zinc

ii.)

Odd leg callipers

iii.)

Engineer's square

iv.)

- tin snips
- junior hacksaw
- hacksaw

Question 3

a.)

Any three from:

- The process is fully automated
- No need for workshops
- Models can be created directly from CAD drawings.
- Accuracy of parts
- Reduces work force/ need for wages
- Can run 24 hours a day.
- Consistency in quality of products.
- Unskilled workers can be used.
- Faster production rate.

Any other acceptable answer.

B.)

Any three from:

- Loss of skilled work to the manufacturing industry.
- May lead to loss of jobs as fewer workers are required.
- Lower salaries as jobs are less skilled.
- Initial set up cost of machines
- Cost of maintenance / software updates.

Any other acceptable answer.

Question	Expected Answers	Additional Guidance
4. a.)	Brass	Accept Bronze
B.) i.)	Engineer's vice	0 marks for vice
ii.)	Hacksaw Jr Hacksaw	
iii.)	Facing off Parallel Turning Taper turning	Accept chamfering
C.) i)	<ul style="list-style-type: none"> • Improves accuracy—marks the centre point • Prevents drill bit from wandering off centre. 	
ii.)	Die Split die	0 marks for die stock
iii.)	<ul style="list-style-type: none"> • use of cutting compound • accurate alignment • chamfering the end • full turn forward, half turn back • adjusting the split die 	