



**Coimisiún na Scrúduithe Stáit
State Examinations Commission**

S53a

JUNIOR CERTIFICATE 2003

**MATERIALS TECHNOLOGY
(WOOD)**

MARKING SCHEME

ORDINARY LEVEL

SECTION A

NOTE

Please ensure that totals for each question are divided by two before entering marks on marking sheets.

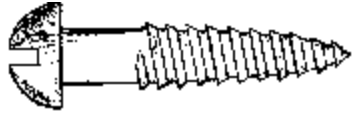
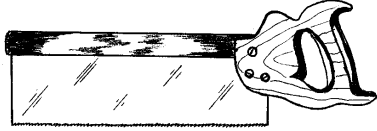
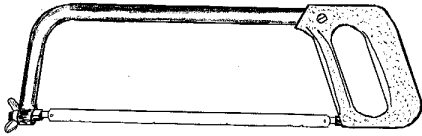

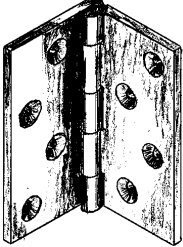
SECTION A - Short Answers

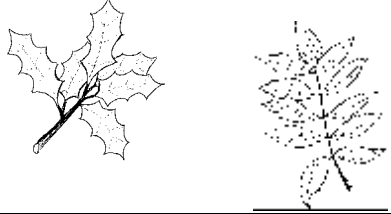
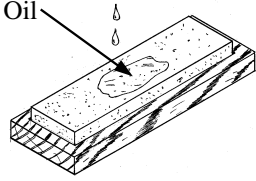
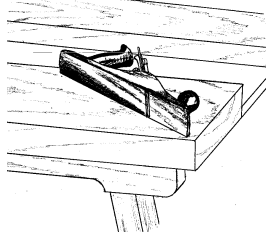
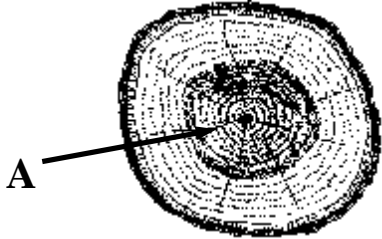
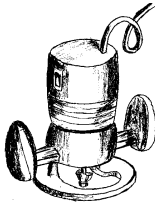
Mark all questions, select the best 16 questions.

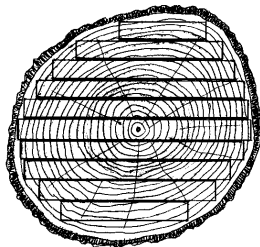
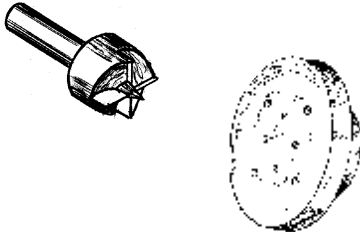
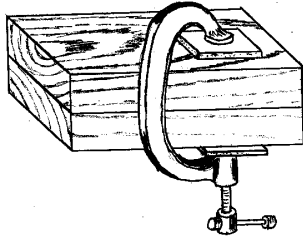

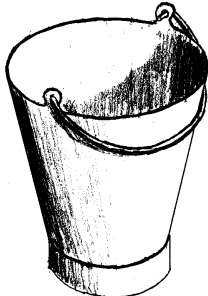
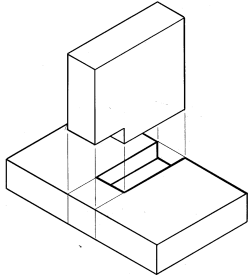
This section is marked out of 80 marks.

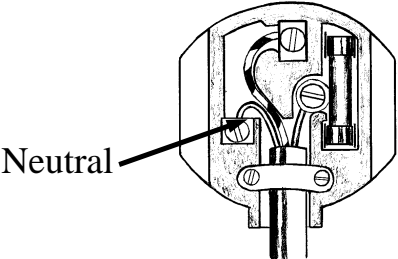
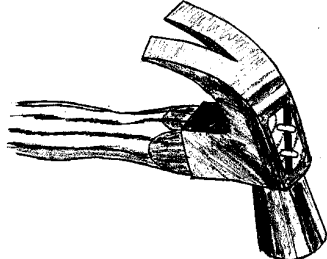
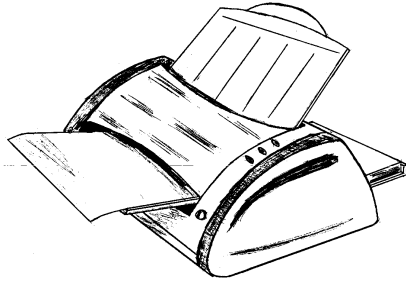
Divide the final mark by 2 on completion of marking.

A mark must be shown under each heading, including zero.

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
1.	Round head screw	5 marks.	
2a.	<p><i>Name:</i> Tenon saw</p> <p><i>Use:</i> Bench sawing, cutting straight cuts, cutting tenons.</p>	<p>Either one, 3 marks.</p> <p>Both 5 marks.</p>	
<u>OR</u>		<u>OR</u>	
2b.	<p><i>Name:</i> Hacksaw</p> <p><i>Use:</i> For cutting metals. For cutting plastics.</p>	<p>Either one, 3 marks.</p> <p>Both 5 marks.</p>	
3.	Face side and face edge mark.	<p>Either one, 3 marks.</p> <p>Both 5 marks.</p>	
4.	<p><i>Name:</i> Butt hinge</p> <p><i>Use:</i> Used to hang doors in houses. Used on box lids. Used on press doors.</p>	<p>Either one, 3 marks.</p> <p>Both 5 marks.</p>	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
5.	A: Holly B: Ash	Either one, 3 marks. Both 5 marks.	
6.	Helps sliding movement. Washes metal fragments away. Keeps the oilstone clean etc.	5 Marks	
7.	Any two precautions. Chisel away from your body. Keep both hands on the chisel. Pay attention at all times. Never place in your pocket. Leave down near the middle of the bench so it will not roll off etc.	Any one, 3 marks. Two rules, 5 marks.	
8.	So that the blade will not get damaged by hitting a nail or screw in the bench top.	5 marks	
9.	Heartwood	5 marks	
10.	Beech Pine Ash Douglas Fir Sycamore	Deciduous Coniferous Deciduous Coniferous Deciduous	1 mark per correct answer.
11.	Electric router	5 marks.	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
12.	Through and through sawing. Slash sawing.	5 marks.	
13.	A: Forked centre B: Faceplate	Either one, 3 marks. Both 5 marks.	
14.	To prevent the cramp from damaging the wood. To spread the load.	5 marks.	
15.	Pincers.	5 marks	
16.	Coating the iron with a layer of zinc.	5 marks	
17.		5 marks	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
18.		5 marks.	
19.	The wedges spread out the fibres at the end of the handle to ensure the head is fixed securely.	5 marks.	
20.	Output	5 marks.	

SECTION A

Note

Divide final mark by 2 on completion of marking of this section



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SECTION B

NOTE

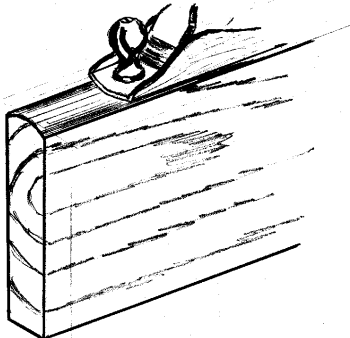
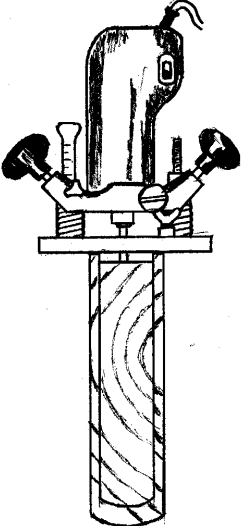
Please ensure that totals for each question are divided by TWO before entering marks on marking sheets.

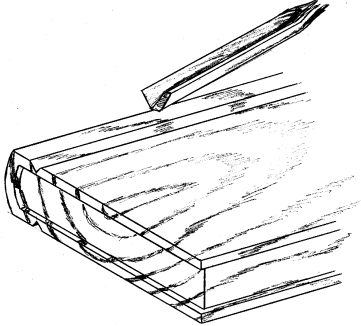
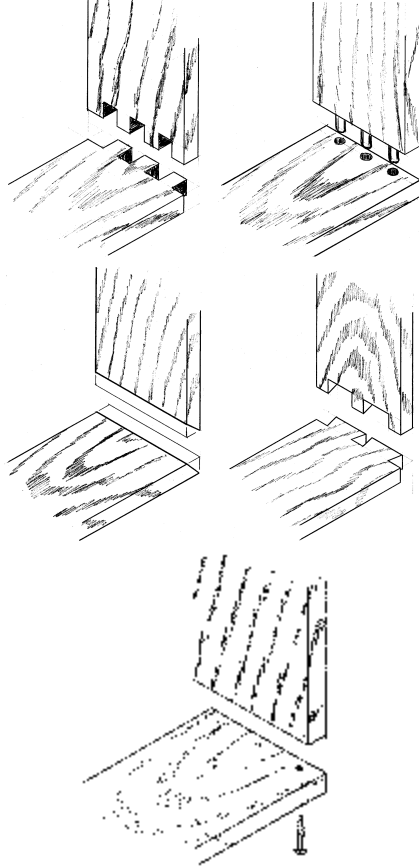
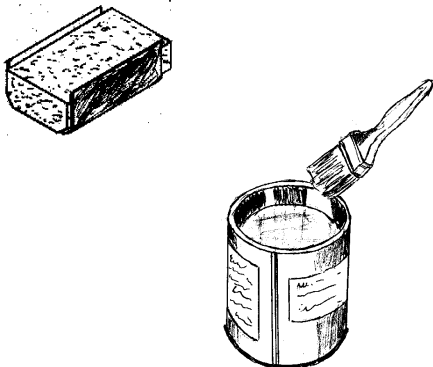
SECTION B

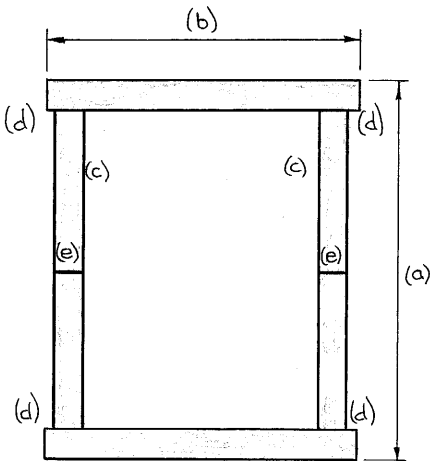
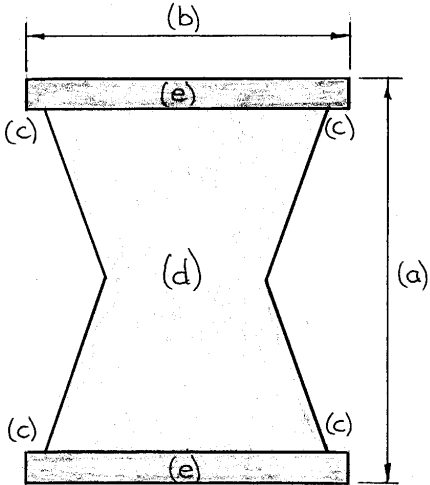
Mark for best three questions.

This section is marked out of 120 marks.

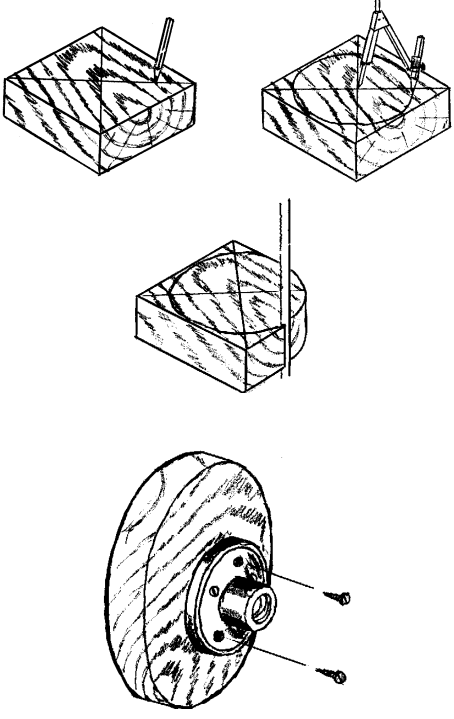
Divide the final mark by 2 on completion of marking

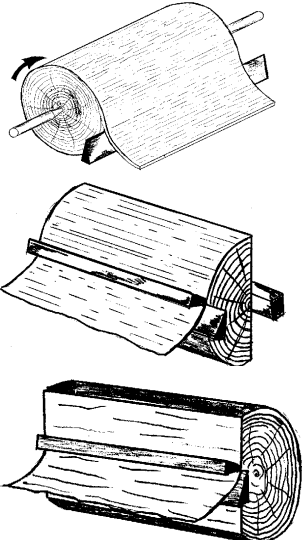
Q	SKETCHES	NOTES	MARKS
1(i)	 	<p><u>The back of the book.</u></p> <p>The back of the book should be rounded slightly. This should be done using a plane. Once the planing is complete the surface should be sanded using sandpaper.</p> <p><u>The pages of the book.</u></p> <p>A shallow trench should be worked on three sides of the book to form the pages. The easiest way to form this would be with the electric router. Use a parallel bit, set to a depth of 4mm to 5mm. An alternative method would be to saw the sides of the trench by hand to the required depth and then remove the waste in the middle with a hand router or a chisel.</p> <p><u>The book cover.</u></p> <p>A groove could be cut to one side of each cover to represent where the cover folds when being opened.</p>	<p>Notes and sketches 5 marks.</p> <p>Notes or sketches only 3 marks.</p> <p>Notes and sketches 5 marks.</p> <p>Notes or sketches only 3 marks.</p>

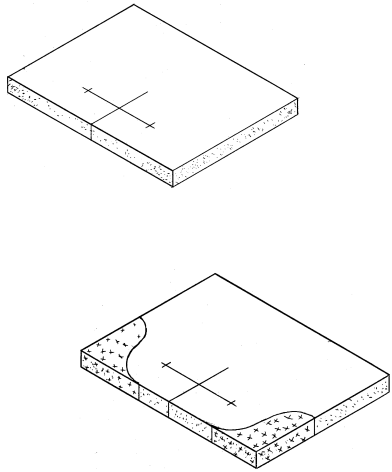
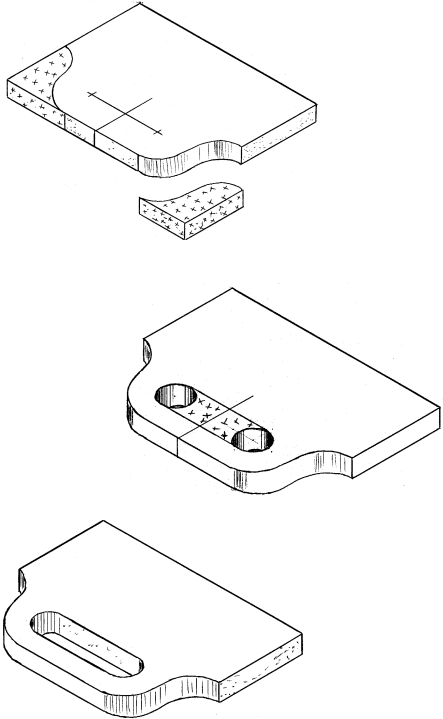
Q.	SKETCHES	NOTES	MARKS
1(i) Cont.		<p>This would be marked 4/5mm in from the edge. The groove would be cut with a chisel, a V-tool, a plough plane, router etc.</p>	<p>Notes and sketches 5 marks.</p> <p>Notes only or sketches only 3 marks.</p>
1(ii)		<p>Sketch of any suitable joint with a brief description.</p> <p>Finger joint. Dowel joint. Mitre joint. Dovetail joint.</p> <p>Butt joint nailed/ screwed/glued.</p> <p>Any three suitable tools.</p>	<p>Notes and sketches 10 marks.</p> <p>Notes only or sketches only 6 marks.</p> <p>Notes and sketches 6 marks.</p> <p>Notes only or sketches only 4 marks.</p> <p>List of tools used 2 marks each.</p>
1(iii)		<ol style="list-style-type: none"> 1. Smoothing plan 2. Coarse, medium, and fine sandpaper using sanding block. 3. Dusting down. 4. First coat of varnish. 5. When dry sand lightly. 6. Second coat. 	<p>Any three stages 3 marks each.</p>

Q.	SKETCHES	NOTES	MARKS
2(i)	 <p style="text-align: center;">ELEVATION</p>	<p>(a) Overall height 4</p> <p>(b) Overall width 4</p> <p>(c) Two vertical side boards 4</p> <p>(d) Sides inset 5mm from edge. 2</p> <p>(e) Lines across the middle 2</p>	
2(ii)	 <p style="text-align: center;">END VIEW</p>	<p>(a) Overall height 4</p> <p>(b) Overall width 4</p> <p>(c) Inset of 10mm from edge 4</p> <p>(d) Shape of sides 3</p> <p>(e) Material thickness 3</p>	
2(iii)	<p style="text-align: center;">DIMENSIONS</p> <p style="text-align: center;">ARROWHEADS</p>	<p>ONE mark for each correct dimension (1 mark×4)</p> <p>TWO marks for correct arrows</p>	<p style="text-align: center;">4</p> <p style="text-align: center;">2</p>

Q.	SKETCHES	NOTES	MARKS
3(i)		Beech, oak, lime, sycamore, cherry, horse chestnut, hawthorn, willow etc.	Any two 2 marks each.
3(ii)		<p>Loose their leaves in the autumn. Seeds are surrounded by a fruit. The trunk is an uneven shape and branches. The leaves are broad. The wood is hardwood. The tree shape is often rounded and irregular. Do not tolerate extreme climatic cold.</p> <p style="text-align: center;">etc.</p>	Any four 4 marks each.
3(iii)		Scots pine, douglas fir, sitka spruce, lodgepole pine, lawsons cyprus etc.	Any two 2 marks each.
3(iv)		<p>Keep their leaves through the winter. Seeds are in a cone. The trunk is an even shape and tapers gradually. The leaves are needle shaped. The wood is softwood. The tree shape is often conical and regular. Tolerate extreme climatic cold.</p> <p style="text-align: center;">etc.</p>	Any four 4 marks each.

Q.	SKETCHES	NOTES	MARKS
4A (i)		<ol style="list-style-type: none"> 1. Find the centre of the square by joining the diagonals. 2. Draw as large a circle as possible on the surface using this centre point. 3. Cut away the waste using a bandsaw. 4. Attach the faceplate securely using screws. 5. The centre of the faceplate must be directly above the centre of the piece of wood. 6. Mount the faceplate back onto the head-stock. 	<p>Notes and sketches 18 marks</p> <p>Notes or sketches only 14 marks</p>
4A (ii)		<ol style="list-style-type: none"> 1. French polish – very decorative. Application:- While the plate is turning at a slow speed on the lathe, apply a number of coats with a cloth / rubber / wire wool. 2. Oil - quick and easy to apply. Application:- As above with excess wiped off with a cloth after each coat. 3. Wax - easy to apply. Application:- Cloth or wire wool. Burnished with a soft cloth. 4. Varnish - hardwearing Application:- 2 to 3 light coats with a brush. 	<p>Finish 3 marks.</p> <p>Reason 3 marks.</p> <p>Application 6 marks.</p>

Q.	SKETCHES	NOTES	MARKS
4A (iii)		<p>Ensure the tool rest is set at the correct level. Check the wood for loose knots and cracks. Keep long hair tied back. Loose or long sleeves should be rolled up. Tuck a tie or scarf inside your shirt / blouse. Wear eye protection. etc.</p>	<p>Any two 5 marks each.</p>
Q4B (i)		<p>Rotary cutting. The log is softened in a steam bath. It is then mounted on a spindle. As the log is rotated towards the cutter a thin sheet of veneer is cut off. The veneer is trimmed to size and dried carefully. Veneer can also be cut by flat slicing or half round slicing.</p>	<p>Notes and sketches 16 marks</p> <p>Notes or sketches only 12 marks</p>
Q4B (ii)		<p>Animal glue. Contact/impact adhesive. Cascamite. P.V.A.</p> <p>Two reasons for choice.</p>	<p>4 marks</p> <p>4 marks each.</p>
Q4B (iii)		<p><u>Table top</u></p> <ul style="list-style-type: none"> • veneered MDF • blockboard • plywood • M.D.F. • A solid timber <p><u>Dark squares</u></p> <ul style="list-style-type: none"> • Mahogany 	<p>4 marks</p> <p>4 marks</p>

Q.	SKETCHES	NOTES	MARKS
Q4B (iii)		<ul style="list-style-type: none"> • Ebony • Light veneer with a stain applied. <p><u>Light squares</u></p> <ul style="list-style-type: none"> • Sycamore • Lime • Ash • Horse Chestnut 	4 marks
5(i)		<p>The handle could have an opening cut into it wide enough for four fingers to fit in. This opening should be near the top edge but not too near because it would weaken the handle. The divider is a simple rectangle. The corners could be removed and the top edge curved to improve the overall appearance.</p>	<p>Notes and sketches 12 marks</p> <p>Notes or sketches only 8 marks</p>
5(ii)		<p>After marking out, the finger hole would be formed by drilling a large diameter hole at either end of the slot. The waste between the two holes would be cut away using a scroll saw, electric jigsaw, coping saw etc. The shaping of the top edge would be done using a band saw or the saws mentioned above. The slot forming the handle should be smoothed carefully using a rasp and sandpaper</p>	<p>Notes and sketches 16 marks</p> <p>Notes or sketches only 12 marks</p>

Q.	SKETCHES	NOTES	MARKS
Q5 (iii)		<p>M.D.F. is a good choice of material because it is; Very stable material. Easily worked. Takes a good finish. Readily available. Comes in large sheets. Comes in an exact thickness. Holds screws well in all edges.</p>	<p>Any three 4 marks each.</p>

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