



**Coimisiún na Scrúduithe Stáit**  
**State Examinations Commission**

**Junior Certificate 2012**

**Marking Scheme**

**Materials Technology Wood**

**Ordinary Level**



# **JUNIOR CERTIFICATE 2012**

## **MATERIALS TECHNOLOGY (WOOD)**

### **MARKING SCHEME**

### **ORDINARY LEVEL**

### **SECTION A**

**The sample solutions shown are presented as example answers. All other valid solutions are acceptable and are marked accordingly.**

#### **NOTE**

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



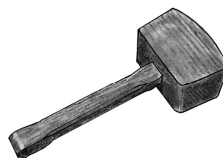
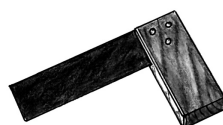
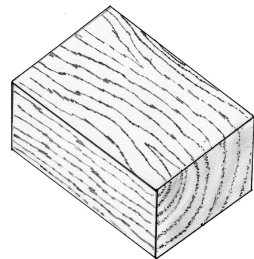
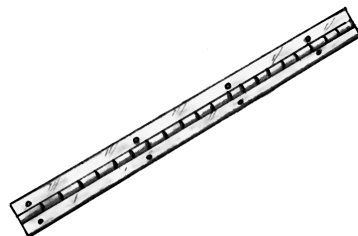
## SECTION A - Short Answers

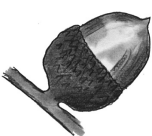

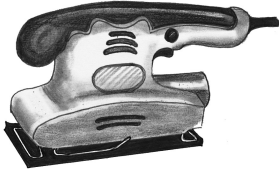


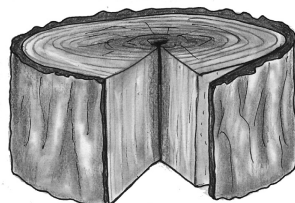
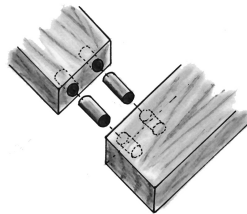
Mark all questions, select the best 16 questions.

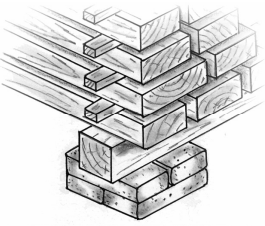
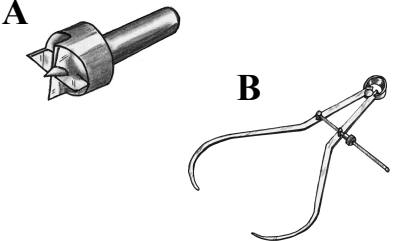


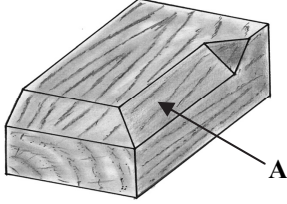
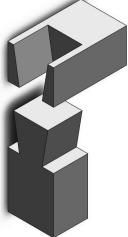
This section is marked out of 80 marks.

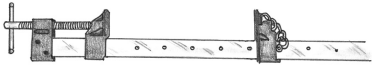
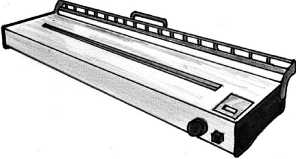

Divide the final mark by 2 on completion of marking.

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

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
1.	A - Cut tack B - Panel pin	Either one, <b>3 marks</b> Both <b>5 marks</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <b>A</b>   </div> <div style="text-align: center;"> <b>B</b>   </div> </div>
2a.  <u>OR</u> 2b.	<p><b>Name:</b> Mallet</p> <p><b>Use:</b> Hitting the handle of chisel when mortising, assembly of joints etc.</p> <p><b>Name:</b> Tri-square</p> <p><b>Use:</b> Used to check angles are right angles, used to square lines across wood etc.</p>	<p>Either one, <b>3 marks</b> Both <b>5 marks</b></p> <p style="text-align: center;"><u>OR</u></p> <p>Either one, <b>3 marks</b> Both <b>5 marks</b></p>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <b>A</b>   </div> <div style="text-align: center;"> <b>B</b>   </div> </div>
3.	Grain drawn on top Grain drawn on side End grain drawn	<p>Any two, <b>3 marks</b></p> <p>All three <b>5 marks</b></p>	
4.	<p><b>Name:</b> Piano hinge</p> <p><b>Use:</b> Used to hinge light doors, box lids, piano lids etc.</p>	<p>Either one, <b>3 marks</b> Both <b>5 marks</b></p>	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
5.	A: Oak B: Sycamore	Either one, <b>3 marks</b>  Both <b>5 marks</b>	A  B 
6.	Electric sander	<b>5 Marks</b>	
7.	Carefully read all directions, Work in a well ventilated area, Wear protective clothing / safety equipment, Do not inhale / wear mask, etc.	Any one, <b>3 marks</b>  Two rules, <b>5 marks</b>	
8.	Plane from the edge inwards to about halfway, then plane in a similar manner from the other edge inwards. Use a shooting board and block.	<b>5 marks</b>	
9.	Protect the tree from weather, Insect / animal attack, Fungal attack	<b>5 marks</b>	
10.	Iron - Will rust Zinc - Will not rust Silver - Will not rust Copper - Will not rust Mild Steel - Will rust	<b>1 mark</b> per correct answer	
11.	Dowel Joint	<b>5 marks</b>	

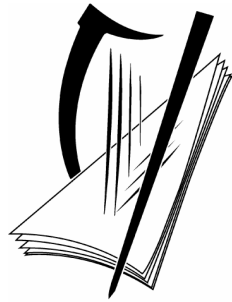
Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
12.	To maximise air circulation around the bottom planks To prevent moisture moving from the ground to the wood etc.	5 marks	
13.	Forked centre Calipers	Either one, 3 marks  Both 5 marks	
14.	Appearance Natural spring Natural material Durable	5 marks	
15.	Extra surface area for glue  Prevents glue from getting trapped under dowel	5 marks	
16.	Stopped chamfer	5 marks	
17.	Angled lines for tail  Lines for shoulders	Either set of lines 3 marks  Both 5 marks	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
18.	Tightening frames and boards together when gluing.	5 marks	
19.	Used to heat thermoplastics along a bend line.	5 marks	
20.	Easier to draw Easier to modify Multi Views (3D) Visualisation Other valid answer	5 marks	

## SECTION A

### *Note*

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



**JUNIOR CERTIFICATE 2012**

**MATERIALS TECHNOLOGY  
(WOOD)**

**MARKING SCHEME**

**ORDINARY LEVEL**

**SECTION B**

**NOTE**

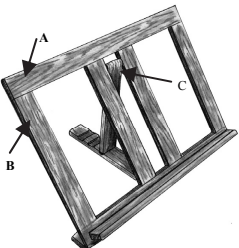
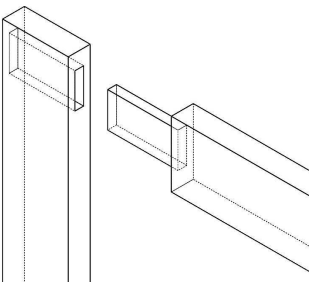
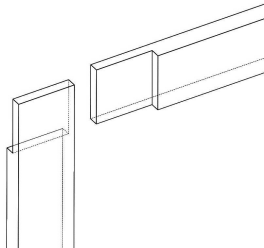
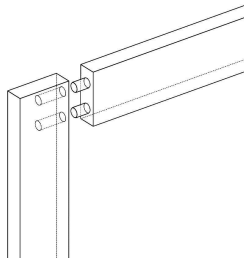
**Please ensure that totals for each question are divided by TWO before entering marks on marking sheets.**

## SECTION B

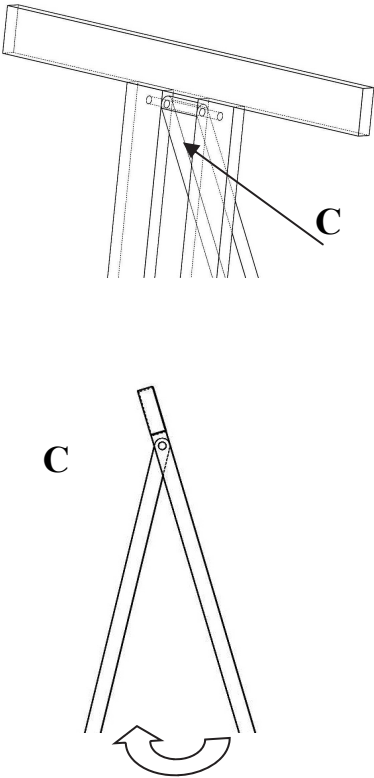
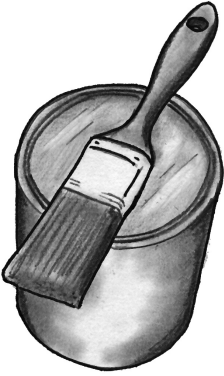
**Mark for best three questions.**

**This section is marked out of 120 marks.**

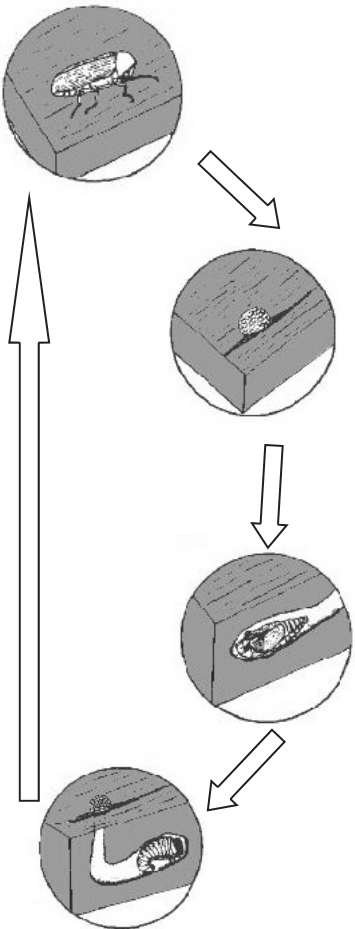

**Divide the final mark by 2 on completion of marking**

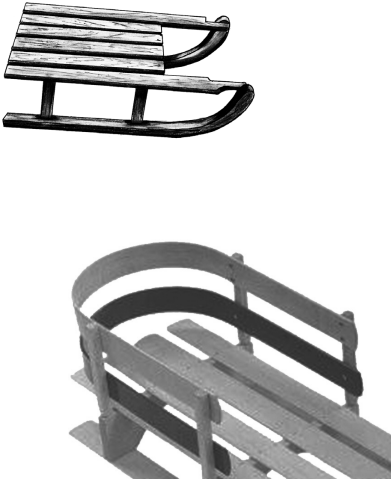
Q.	SKETCHES	NOTES	MARKS
1(i)	   	<p>Any suitable method of <b>jointing</b> the top <b>A</b> to the side <b>B</b> e.g.</p> <p>Mortise and tenon,</p> <p>Halving Joint,</p> <p>Dowel joint,</p> <p>Etc.</p> <p>Notes and sketches of jointing method.</p>	<p>Notes and sketches <b>18 marks</b></p> <p>Notes only or sketches only <b>12 marks</b></p>

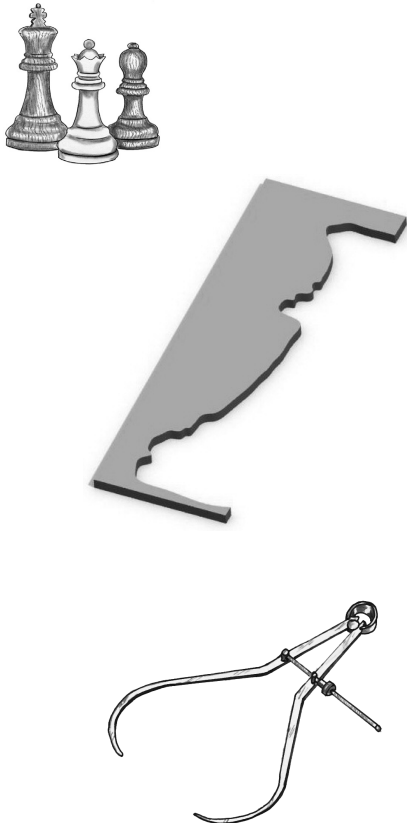
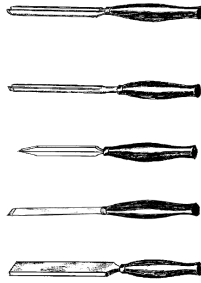
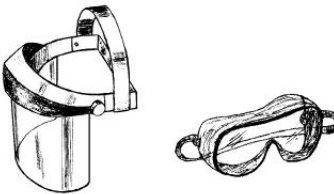


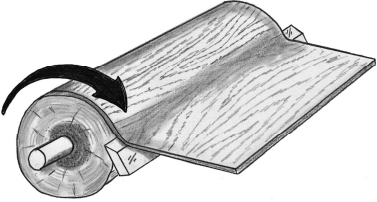
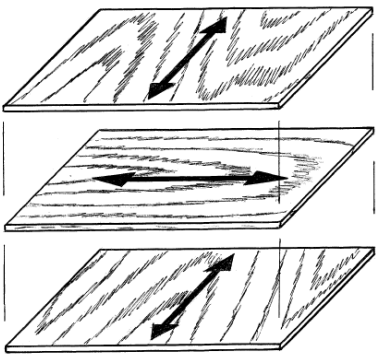
Q.	SKETCHES	NOTES	MARKS
1(ii)		<p>Any suitable method that would allow movement of piece 'C'</p> <p>e.g. dowel joint</p> <p>Notes and sketches of suitable joint</p>	<p>Notes and sketches <b>16 marks</b></p> <p>Notes only or sketches only <b>12 marks</b></p>
1(iii)		<p>Finish Non-toxic paint Oil Varnish</p> <p>Reasons for choice Two reasons to support the choice of finish</p>	<p><b>2 marks</b> for name</p> <p>2 reasons <b>2 marks</b> each</p>

Q.	SKETCHES	NOTES	MARKS
2(i)	<p style="text-align: center;"><b>ELEVATION</b></p>	<p>(a) Overall height</p> <p>(b) Overall width</p> <p>(c) Width of 'hook' (c)</p> <p>(d) Side thickness</p> <p>(e) Height of front</p> <p>(f) Height of base</p>	<p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>2</p> <p>2</p>
2(ii)	<p style="text-align: center;"><b>END VIEW</b></p>	<p>(g) Overall height</p> <p>(h) Width of back</p> <p>(i) Height of 'hook'</p> <p>(j) Width of base</p> <p>(k) Width of 'hook'</p>	<p>4</p> <p>4</p> <p>2</p> <p>2</p> <p>2</p>
2(iii)	<p style="text-align: center;"><b>DIMENSIONS</b></p> <p style="text-align: center;"><b>ARROWHEADS</b></p>	<p><b>ONE</b> mark for each correct dimension (<b>1 mark</b>×4)</p> <p><b>TWO</b> marks for correct arrows</p>	<p>4</p> <p>2</p>

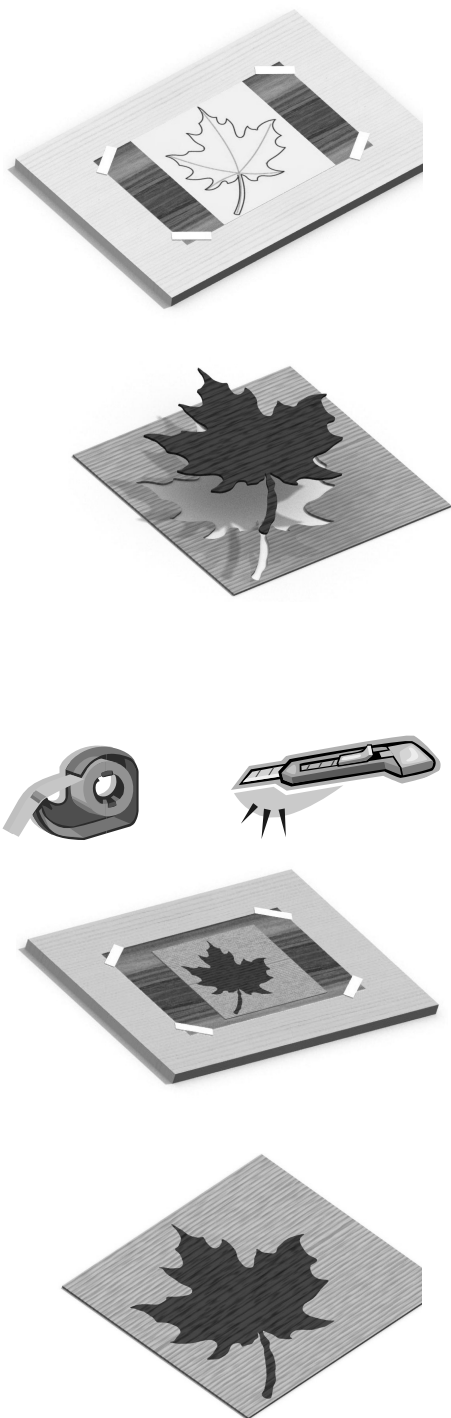
Q.	SKETCHES	NOTES	MARKS
3(i)		<p><b>Eggs</b> The female lays eggs in cracks and crevices on the wood surface. She will not lay eggs on very smooth surfaces.</p> <p><b>Larva</b> The eggs hatch into little grubs. These grubs bore into the wood, eating their way through it forming tunnels. They grow over the next 2-3 years.</p> <p><b>Pupa</b> The grub changes into a pupa or chrysalis near the wood surface. During this stage the grub changes into a beetle.</p> <p><b>Adult</b> The beetle eats its way to the surface forming the circular exit hole. The adult searches for a mate to begin the cycle again.</p>	<p>Notes and sketches <b>18 marks</b></p> <p>Notes only or sketches only <b>12 marks</b></p>
3(ii)		<p><b>Adult</b></p> <p>The beetle pupates near the wood surface. When it becomes an adult it breaks through the surface forming an exit hole. These holes are often the first sign of infestation.</p>	<p>Name stage <b>4 marks</b></p> <p>Notes and sketches <b>12 marks</b></p> <p>Notes only or sketches only <b>6 marks</b></p>
3(iii)		<p>To prevent attack: Treat the wood with a preservative containing an insecticide <b>Or</b> Use a gloss varnish on the new wood to prevent attack</p>	<p>Any method <b>6 marks</b></p>

Q.	SKETCHES	NOTES	MARKS
4 (i)		<p>Notes and sketches of new design that will allow the user more stability e.g.</p> <p>Back rest Side rails Foot rests Handles etc</p>	<p>Notes and sketches <b>20 marks</b></p> <p>Notes only or sketches only <b>12 marks</b></p>
4 (ii)		<p>Any suitable wood</p> <p>Any two reasons: Cheap Easy to work Light Attractive grain etc</p>	<p>Material <b>2 marks</b></p> <p>2 reasons <b>4 marks each</b></p>
4 (iii)		<p>Any suitable finish</p> <p>Any two reasons e.g. Protection Hard wearing Attractive appearance etc.</p>	<p>Finish <b>2 marks</b></p> <p>2 reasons <b>4 marks each</b></p>

Q.	SKETCHES	NOTES	MARKS
5A(i)		<p>Cut a template from cardboard or from plywood. The template matches the shape of the handle. By constantly offering up this template to your work you can ensure all pieces are the same size and shape.</p> <p><b>Or</b></p> <p>By using callipers you can match the sizes of the piece you are making with the piece already made.</p> <p><b>Or</b></p> <p>Adequate description and sketches of using a copying lathe.</p>	<p>Notes and sketches <b>18 marks.</b></p> <p>Notes only or sketches only <b>12 marks.</b></p>
5A(ii)		<p>Any relevant tool named and sketched</p>	<p>Name <b>4 marks</b></p> <p>Sketch <b>10 marks</b></p>
5A(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 <b>4 marks each</b></p>

Q.	SKETCHES	NOTES	MARKS
<b>5B</b> <b>(i)</b>		<p>A log cut into veneers will produce a lot of veneers with little or no wastage.</p> <p>These veneers can then be glued to cheaper, more readily available manufactured boards. A large number of projects can therefore be made from the one log of rare and expensive timber.</p> <p>If the same log was cut into planks to make projects using solid wood, the log would be used up much quicker and there would also be a lot of waste in the form of sawdust and shavings.</p>	<p>Any two  <b>4 marks each</b></p>
<b>5B</b> <b>(ii)</b>		<p>Plywood is manufactured from rotary cut veneers bonded together with the grain direction of alternative sheets at right angles to the layer beneath.</p> <p>Veneers, being very thin, will be weak along the grain. By alternating the direction of the grain the resulting plywood will be strong both in the length and the width.</p>	<p>Name  <b>4 marks</b></p> <p>Notes and sketches  <b>12 marks.</b></p> <p>Notes only or sketches only  <b>8 marks.</b></p>

**5 B  
(iii)**



**Method 1**

***Window method.***

Trace the design using carbon paper onto the background veneer. Cut around the outline of the picture to produce a 'window'. Tape the second veneer behind the first and cut using the edges of the windows as templates.

**Or**

**Method 2**

***Overlay method.***

Draw the picture onto a sheet of paper. Tape the background veneer to the veneers being used for the picture and trace the design onto the top veneer. Cut around the outline using a scalpel/knife. Since both veneers are cut at once they should be a perfect fit for each other. Reverse the veneers for adhesive and fix to backboard.

Notes and  
sketches  
**16 marks**

Notes only  
or  
sketches  
only  
**10 marks**

**Please ensure that totals are divided by two before entering  
marks on marking sheets**



### Marking Scheme - Ordinary Level

**200 Marks**

**School:** \_\_\_\_\_

**School No:** \_\_\_\_\_

**Examiner:**

Project Choice (1,2, 3 or 4)								
Gender (M or F)								
Marks	Examination Number							
10	10	10	10	10	10	10	10	50
Folio Total								
Realisation								
20	10	20	60	20	20	150	Realisation Total	
Grade								
Grand Total								