



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate 2015

Marking Scheme

Materials Technology Wood

Ordinary Level

Note to teachers and students on the use of published marking schemes

Marking schemes published by the State Examinations Commission are not intended to be standalone documents. They are an essential resource for examiners who receive training in the correct interpretation and application of the scheme. This training involves, among other things, marking samples of student work and discussing the marks awarded, so as to clarify the correct application of the scheme. The work of examiners is subsequently monitored by Advising Examiners to ensure consistent and accurate application of the marking scheme. This process is overseen by the Chief Examiner, usually assisted by a Chief Advising Examiner. The Chief Examiner is the final authority regarding whether or not the marking scheme has been correctly applied to any piece of candidate work.

Marking schemes are working documents. While a draft marking scheme is prepared in advance of the examination, the scheme is not finalised until examiners have applied it to candidates' work and the feedback from all examiners has been collated and considered in light of the full range of responses of candidates, the overall level of difficulty of the examination and the need to maintain consistency in standards from year to year. This published document contains the finalised scheme, as it was applied to all candidates' work.

In the case of marking schemes that include model solutions or answers, it should be noted that these are not intended to be exhaustive. Variations and alternatives may also be acceptable. Examiners must consider all answers on their merits, and will have consulted with their Advising Examiners when in doubt.

Future Marking Schemes

Assumptions about future marking schemes on the basis of past schemes should be avoided. While the underlying assessment principles remain the same, the details of the marking of a particular type of question may change in the context of the contribution of that question to the overall examination in a given year. The Chief Examiner in any given year has the responsibility to determine how best to ensure the fair and accurate assessment of candidates' work and to ensure consistency in the standard of the assessment from year to year. Accordingly, aspects of the structure, detail and application of the marking scheme for a particular examination are subject to change from one year to the next without notice.

The Sample solutions where shown are presented as example answers.

All other valid solutions are acceptable and are marked accordingly.



JUNIOR CERTIFICATE 2015

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.

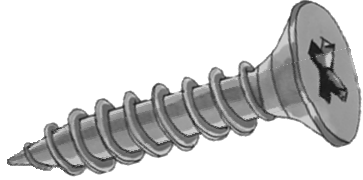

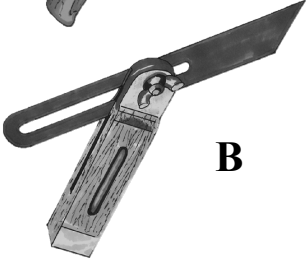
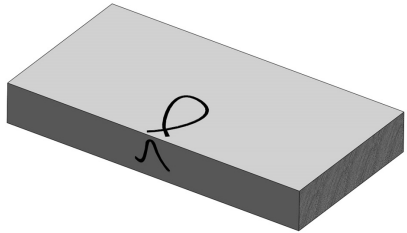
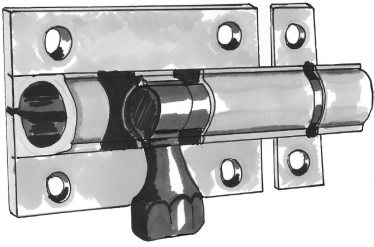
SECTION A - Short Answers


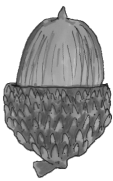

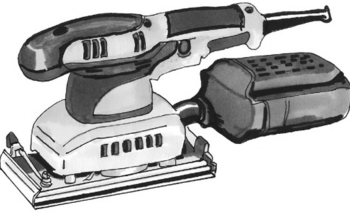

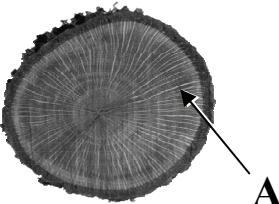

Mark all questions, select the best 16 questions


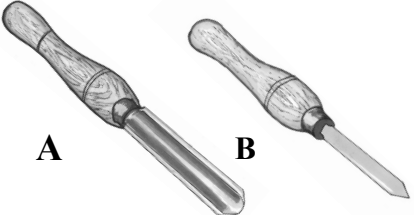
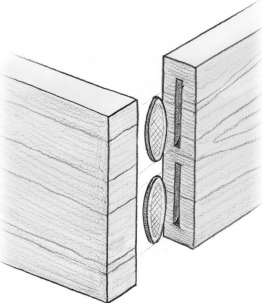


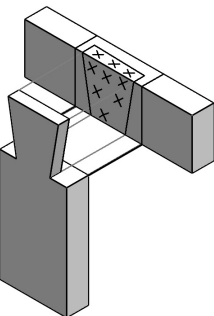
This section is marked out of 80 marks.

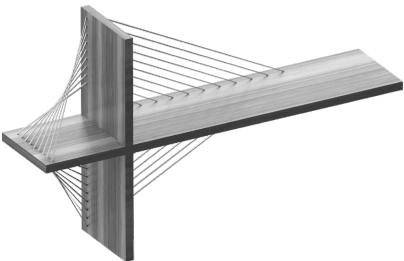

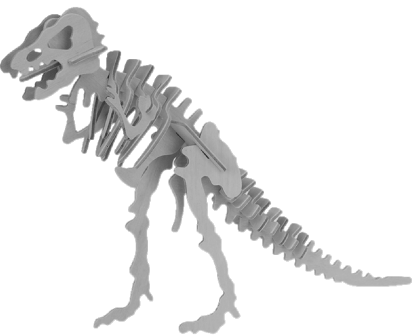
Divide the final mark by 2 on completion of marking.

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

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
1.	Countersunk Head Screw	5 marks.	
2a.	<i>Name:</i> Claw Hammer	Either one, 3 marks.	
<u>OR</u>	<i>Use:</i> Driving nails. Pulling nails.	Both 5 marks.	
2b.	<i>Name:</i> Sliding Bevel.	<u>OR</u>	
	<i>Use:</i> Setting and transferring angles.	Either one, 3 marks. Both 5 marks.	
3.	Perpendicular edge to take all measurements and angles from.	5 marks.	
4.	<i>Name:</i> Bolt/Barrel bolt.	Either one, 3 marks.	
	<i>Use:</i> Used to keep large doors secure. Used to lock doors.	Both 5 marks.	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
5.	A: Pine B: Oak	Either one, 3 marks. Both 5 marks.	A  B 
6.	Scroll saw	5 Marks	
7.	Never change sandpaper while plugged in. Place on wood before turning on. Work in well ventilated area. Etc.	Any one, 3 marks. Two rules, 5 marks.	
8.	Longer length prevents plane from moving with bumps on surface, levelling them instead.	5 marks	
9.	Medullary rays.	5 marks	
10.	Warping ——— Other Knot ——— Natural End splits ——— Other Spiral grain ——— Natural Heart rot ——— Natural	1 mark per correct answer.	
11.	Finger joint.	5 marks.	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
12.	Through and through.	5 marks.	
13.	A— Roughing gouge B— Parting tool	Either one, 3 marks. Both 5 marks.	
14.	Biscuit joint.	5 marks.	
15.	Attractive grain Light etc.	5 marks.	
16.	Elastic/flexible material allows paper to wear more evenly, less likely to clog etc.	5 marks.	
17.		5 marks.	

Q.	SOLUTION	MARKS	DIAGRAM (IF ANY)
18.	Tension.	5 marks.	
19.		5 marks.	
20.	CNC machine, laser cutter, etc.	5 marks.	

SECTION A

Note

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



JUNIOR CERTIFICATE 2015

**MATERIALS TECHNOLOGY
(WOOD)**

MARKING SCHEME

ORDINARY LEVEL

SECTION B

NOTE

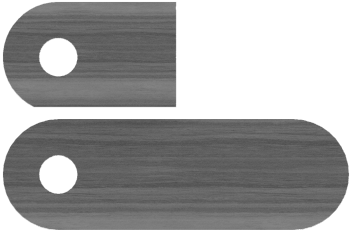

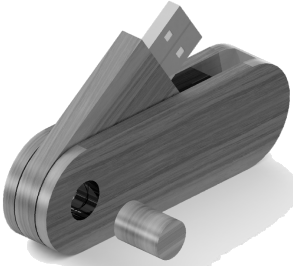
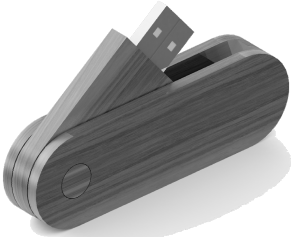
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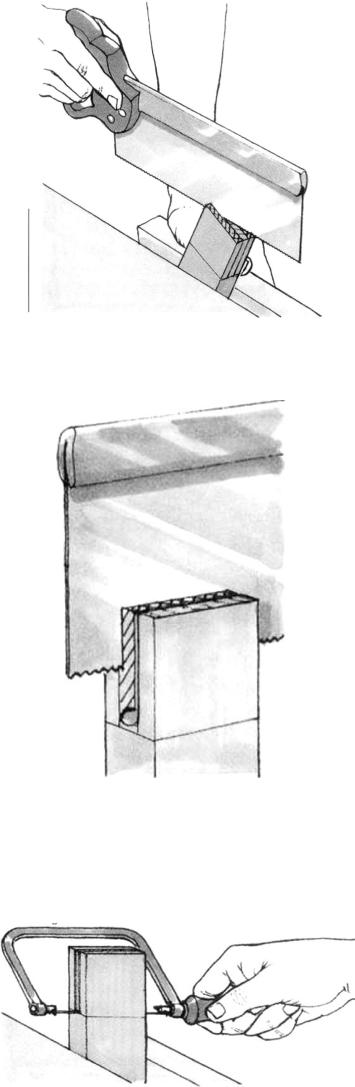

SECTION B

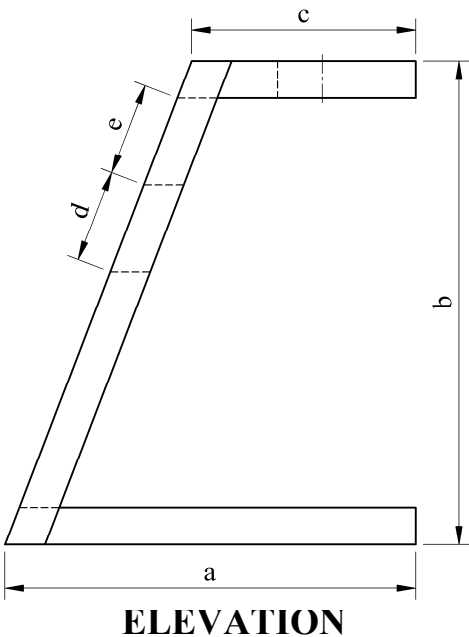
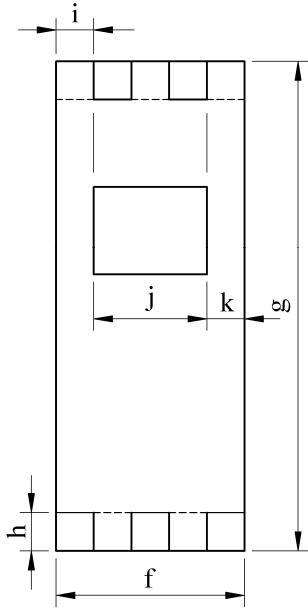
Mark for best three questions.



This section is marked out of 120 marks.

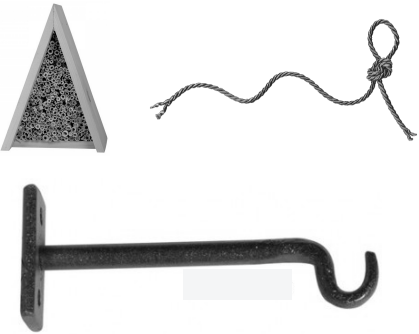



Divide the final mark by 2 on completion of marking

Q.	SKETCHES	NOTES	MARKS
1(i)	   	<p>Any suitable method of jointing the centre piece and the outer case which would allow for rotation, e.g. dowel.</p>	<p>Notes and sketches 18 marks.</p> <p>Notes only or sketches only 12 marks.</p>

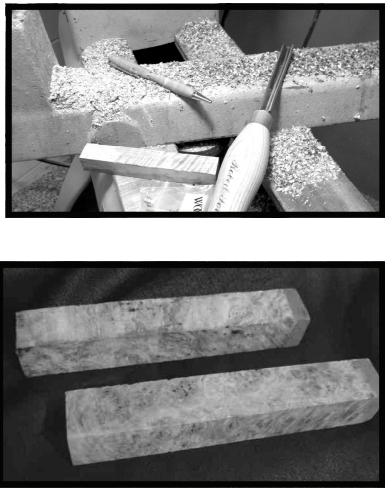
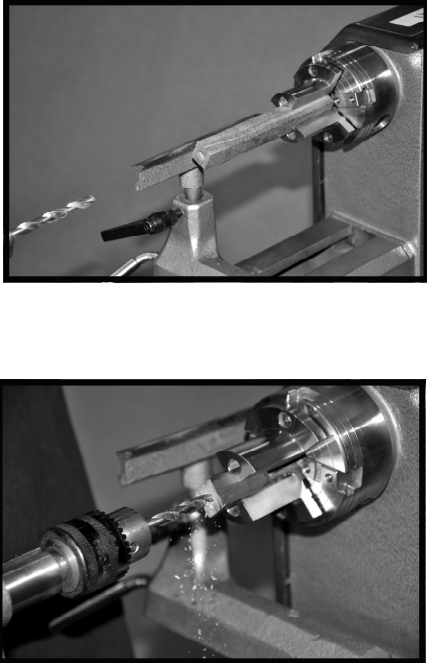
Q.	SKETCHES	NOTES	MARKS
1(ii)		<p>Saw down along the grain using a tenon saw. Keep on the waste side of the line. The waste can now be removed by;</p> <p>(a) Mallet and chisel. Place the piece on the bench and secure by sitting on it or using a clamp. Using a narrow chisel place the blade about 2mm on the waste side of the line. Strike with the mallet. Chop half way through by moving and striking the chisel. Turn the piece and repeat from the other side. Once the large piece of waste comes away pare back exactly to the line using the mallet and chisel.</p> <p>(b) Coping saw/scroll saw The blade can be guided down the tenon saw cut and a cut can be curved down to the opposite corner. The saw can now cut across on the waste side of the line.</p>	<p>Notes and sketches 16 marks.</p> <p>Notes only or sketches only 10 marks.</p>
1(iii)		<p>Name and sketch of any suitable tool used in shaping semi circular ends.</p>	<p>2 marks for name.</p> <p>4 marks For sketch.</p>

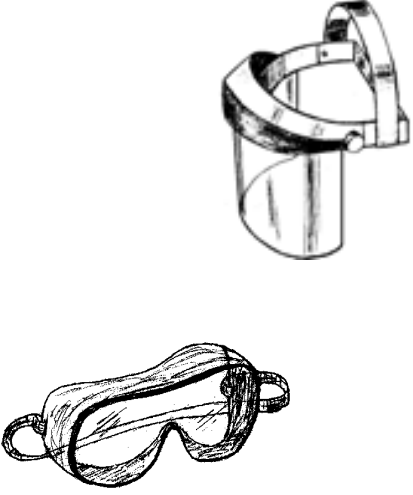

Q.	SKETCHES	NOTES	MARKS
2(i)	 <p style="text-align: center;">ELEVATION</p>	<p>(a) Overall width</p> <p>(b) Overall height</p> <p>(c) Length of top</p> <p>(d) Length of opening</p> <p>(e) Distance from top</p>	<p>4</p> <p>4</p> <p>2</p> <p>2</p> <p>2</p>
2(ii)	 <p style="text-align: center;">END VIEW</p>	<p>(f) Overall width</p> <p>(g) Overall height</p> <p>(h) Height of base</p> <p>(i) Thickness of finger joint</p> <p>(j) Width of opening</p> <p>(k) Distance in from side</p>	<p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>2</p> <p>2</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>4</p> <p>2</p>



Q.	SKETCHES	NOTES	MARKS												
3(i)		<p>Better usability. Wood shrinks as it loses moisture and swells as it gains moisture. It should be dried to the % MC it will have during use.</p> <p>Reduced shipping costs. Dry wood weighs less (drying may reduce its weight by one-half or more). It is more profitable to transport wood than water.</p> <p>Less likelihood of stain or decay during transit, storage, and use.</p> <p>Reduced susceptibility to insect damage.</p> <p>Increased strength. As wood dries below 30% MC, most strength properties increase.</p> <p>Etc.</p>	<p>18 marks</p> <p>3 reasons 6 marks each.</p>												
3(ii)		<p>Stickers.</p> <p>Support the boards.</p> <p>Allow air to circulate freely around all surfaces of the boards.</p> <p>Thickness of sticker controls how much air circulated through the stacked timber.</p>	<p>Name 4marks.</p> <p>Reason 6 marks.</p>												
3(iii)		<table><tr><td></td><td>Natural</td><td>Kiln</td></tr><tr><td>Time</td><td>Very slow</td><td>Very quick</td></tr><tr><td>Cost</td><td>Cheaper</td><td>Expensive</td></tr><tr><td>MC</td><td>Inaccurate</td><td>Exact MC can be achieved</td></tr></table>		Natural	Kiln	Time	Very slow	Very quick	Cost	Cheaper	Expensive	MC	Inaccurate	Exact MC can be achieved	<p>12 marks.</p> <p>4 marks each.</p>
	Natural	Kiln													
Time	Very slow	Very quick													
Cost	Cheaper	Expensive													
MC	Inaccurate	Exact MC can be achieved													

Q.	SKETCHES	NOTES	MARKS
4(i)	 	<p>Any relevant method of hanging the bee house on a garden wall.</p> <p>E.g. incorporate a piece of wood with a hole drilled on it to fit a hook or hang from a string; nail a back board to the wall which can be attached to the bee house etc.</p>	<p>Notes and sketches 16 marks.</p> <p>Notes only or sketches only 10 marks.</p>
4(ii)	 	<p>Any relevant design improvements to the bee house.</p> <p>E.g. The overall shape could be changed to make it look more like a house; a hexagon shape inspired by a bee hive etc.</p>	<p>Notes and sketches 16 marks.</p> <p>Notes only or sketches only 10 marks.</p>

Q.	SKETCHES	NOTES	MARKS
4(iii)		Any suitable finish Any two reasons e.g. Protection Hard wearing Attractive appearance Non toxic Etc.	Finish 2 marks Any two reasons 3 marks each.

Q.	SKETCHES	NOTES	MARKS
<p>5A (i)</p>		<p>Join the corners/ diagonals to find the centre of the wood. Draw a circle on the ends with a compass. Mark out the corners that will be removed. When these are removed it will reduce the knocking and vibration when turning initially. Plane the corners off to form a rough octagonal shape. The piece is now ready for mounting on the lathe.</p>	<p>Notes and sketches 16 marks.</p> <p>Notes only or sketches only 10 marks.</p>
<p>5A (ii)</p>		<p>Method 1 The hole could be drilled using the lathe and a special long shafted gouge. A hollow centre is used in the tailstock which allows the gouge to pass up through it and into the workpiece. The gouge is pushed slowly through the piece when the machine is on but it has to be withdrawn frequently to remove sawdust and shavings.</p> <p>Method 2 With the containers removed from the lathe a hole could be bored using either a bit and brace, a pillar drill, or a hand held electric drill. Great care must be taken to drill along the axis of the piece</p>	<p>Notes and sketches 16 marks.</p> <p>Notes only or sketches only 10 marks.</p>

Q.	SKETCHES	NOTES	MARKS
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>Two relevant precautions 2 marks each.</p> <p>Two relevant reasons 2 marks each.</p>
5B (i)		<p>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.</p> <p>Or</p> <p>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.</p>	<p>Notes and sketches 16 marks.</p> <p>Notes only or sketches only 10 marks.</p>

<p>5B (ii)</p>	 	<p>Edge trim is used to cover the edges of veneered boards. It comes in strips and either has a heat sensitive backing or may have to be applied with glue.</p> <p>If the backing is heat sensitive then a warm iron can be used to soften the adhesive to bond it to the edge of the board.</p>	<p>Notes and sketches 16 marks.</p> <p>Notes only or sketches only 12 marks.</p>
<p>5B (iii)</p>		<p>Any two relevant advantages e.g. cheaper, Environmentally friendly etc.</p>	<p>Any two 4 marks each.</p>

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	10	50
Folio Total									
Realisation									
20	10	20	60	20	20	150	Realisation Total		
Grade									
Grand Total									