



Junior Certificate Examination, 2016

Materials Technology (Wood)

Higher Level

Section A (40 marks)

Monday, 20 June

Afternoon, 2:00 - 4:00

Instructions

- (a) Write your **examination number** in the box provided and on all other pages used.
- (b) This booklet **must** be handed up at the end of the examination.
- (c) Answer any **sixteen** questions.
- (d) All questions carry equal marks.
- (e) Answer the questions in the spaces provided.

Examination Number



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Centre Number

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1.	Total of end of page totals	
2.	Aggregate total of all disallowed question(s)	
3.	Total mark awarded (1 minus 2)	
4.	Bonus mark for answering through Irish (if applicable)	
5.	Total mark awarded if Irish Bonus (3+4)	
Note: The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal the mark in the Grand Total box on the script.		

Question	Marks	
Section A		
1		
2		
3		
4		
5A or 5B		
Total		
Irish Bonus		
Grand Total		

SECTION A - 40 MARKS

Answer any 16 questions from this Section. All questions carry equal marks.

1. (i) Using a tick (✓) identify the power tool shown.

Router ☐ **Orbital Sander** ☐ **Jig Saw** ☐

- (ii) Give **ONE** specific use for this power tool.

USE



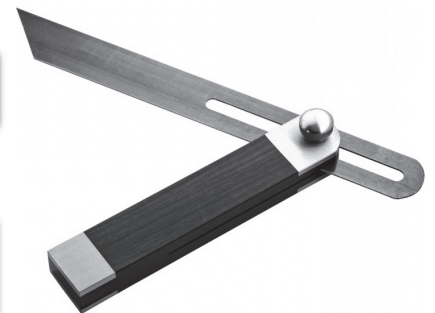
2. (i) Name the woodworking tool shown.

NAME

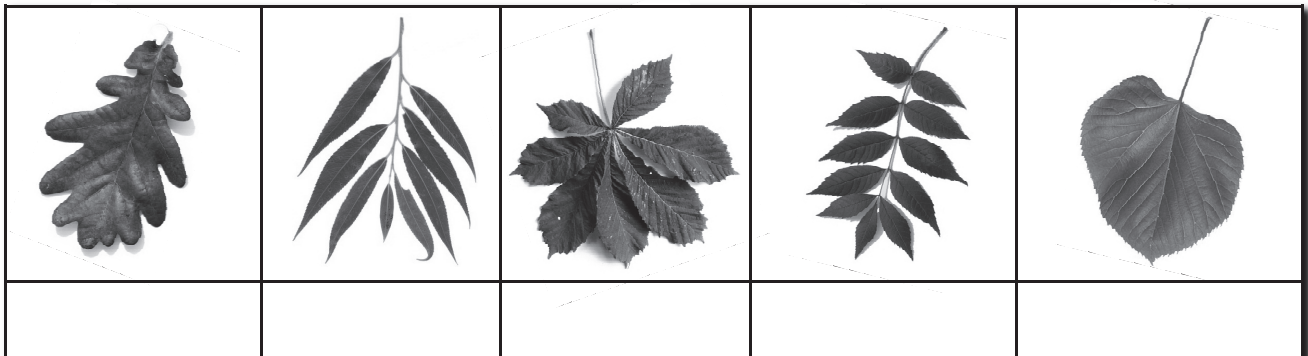
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- (ii) State the correct use for this tool.

USE



3. The diagrams below show the leaves of five common Irish trees.
From the following list, identify the correct name for each tree:
Horse Chestnut, Willow, Oak, Lime, Ash.



4. 3D printers can be used by students studying technological subjects to produce prototypes/models of their projects using CAD/CAM software.

What does the term **CAM** stand for?

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Give **ONE** advantage of using a 3D printer.

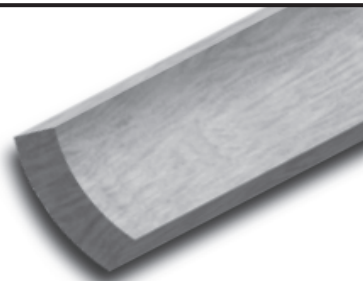
ADVANTAGE

5. (i) The diagram shows a board distorted across its width.
What is this distortion called?

ANSWER

- (ii) What causes a board to distort in this manner?

ANSWER



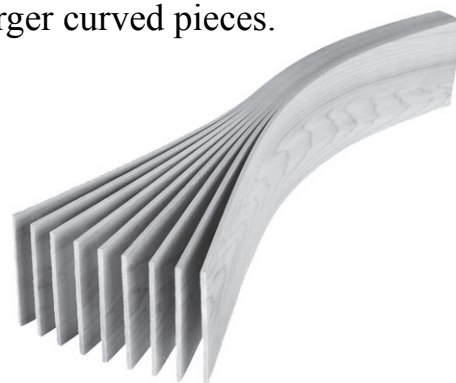
6. Thin strips of wood are often glued together to form larger curved pieces.

- (i) What is the correct name for this technique?

TECHNIQUE

- (ii) Give **ONE** specific advantage of using this technique.

ADVANTAGE

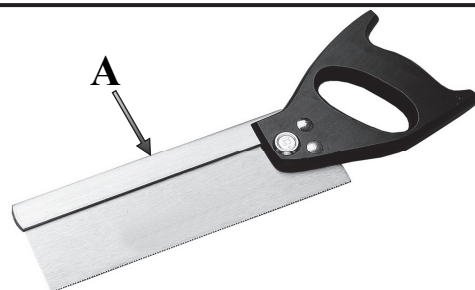


7. (i) The diagram shows a tenon saw.
Name the part labelled A in the diagram.

NAME

- (ii) What is the function of part A?

FUNCTION

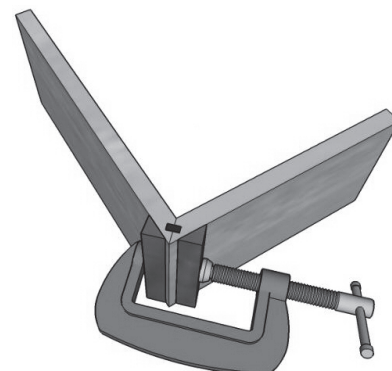


8. (i) The diagram shows a G-cramp holding a woodworking joint. Name the force being applied by the G-cramp.

FORCE

- (ii) Name **ONE** other type of force.

NAME



9. **Angle chucks** are often used in compact drills to reach confined spaces. The diagram shows a set of bevel gears from an angle chuck.

- (i) If the smaller gear rotates clockwise as shown, use another arrow on the diagram to indicate the rotational direction of the larger gear.
- (ii) The small gear has 12 teeth and rotates at a speed of 60 RPM. If the large gear has 36 teeth, what is the rotational speed of the large gear?



SPEED **RPM**

10. (i) Name the tool shown.

NAME

(ii) What is this tool generally used for?

USE



11. (i) What is the correct name for the woodwork fitting shown?

NAME

(ii) Where would this *specific* type of fitting be used?

ANSWER



12. (i) Name the woodworking machine shown.

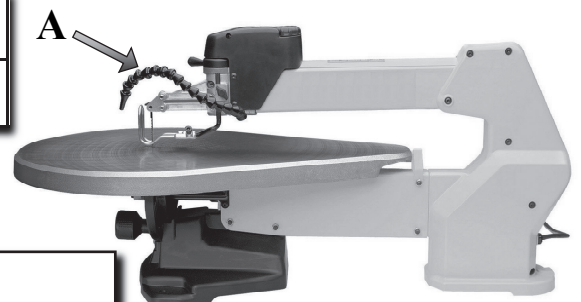
NAME

(ii) Give **ONE** advantage of using this machine in preference to a band saw.

ADVANTAGE

(iii) What is the function of the plastic tubing, labelled **A** in the diagram?

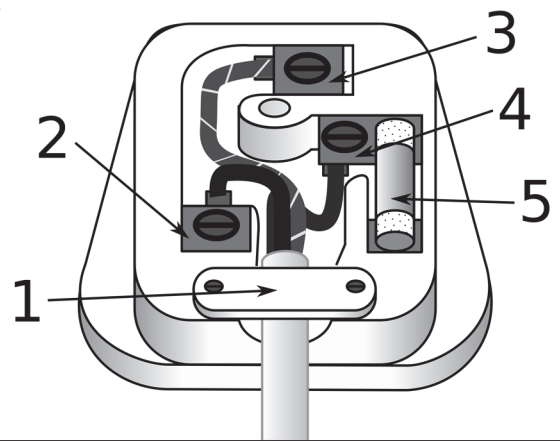
FUNCTION



13. The diagram shows the wiring of a three-pin plug.

Identify the terminals/parts labelled 1 to 5.

1.	
2.	
3.	
4.	
5.	



14. The diagram shows a wooden bird house which is to be painted.

Some steps involved in painting the house are given below.

Put the steps in the correct sequence.

Undercoat, Filler, Finish coat, Sanding, Primer.



1.	→	2.	→	3.	→	4.	→	5.
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15. Give **TWO** reasons why it is necessary to apply a surface finish to a wooden artefact.

REASON 1

REASON 2



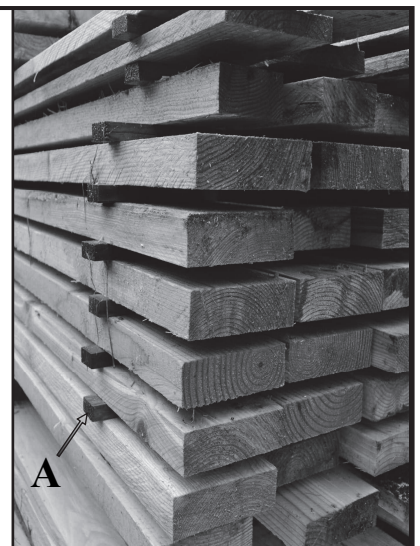
16. (i) The diagram shows wooden boards which have been stacked for seasoning. What is the name for the item labelled A?

ITEM

(ii) Name **TWO** methods of seasoning timber.

METHOD 1

METHOD 2



17. (i) Plastics are divided into two main categories.

Name these categories.

CATEGORY 1

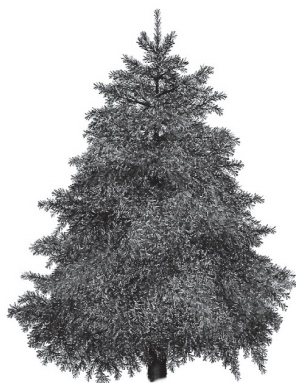
CATEGORY 2

(ii) Which category of plastic can be remoulded?

CATEGORY



18. Using a tick (✓) in the table below, identify whether the trees are **Softwood** or **Hardwood**.



Softwood	Trees	Hardwood
	Oak	
	Sitka Spruce	
	Beech	
	Douglas Fir	
	Maple	



19. The diagrams show three methods of wood carving.

In the spaces provided, name **EACH** method.



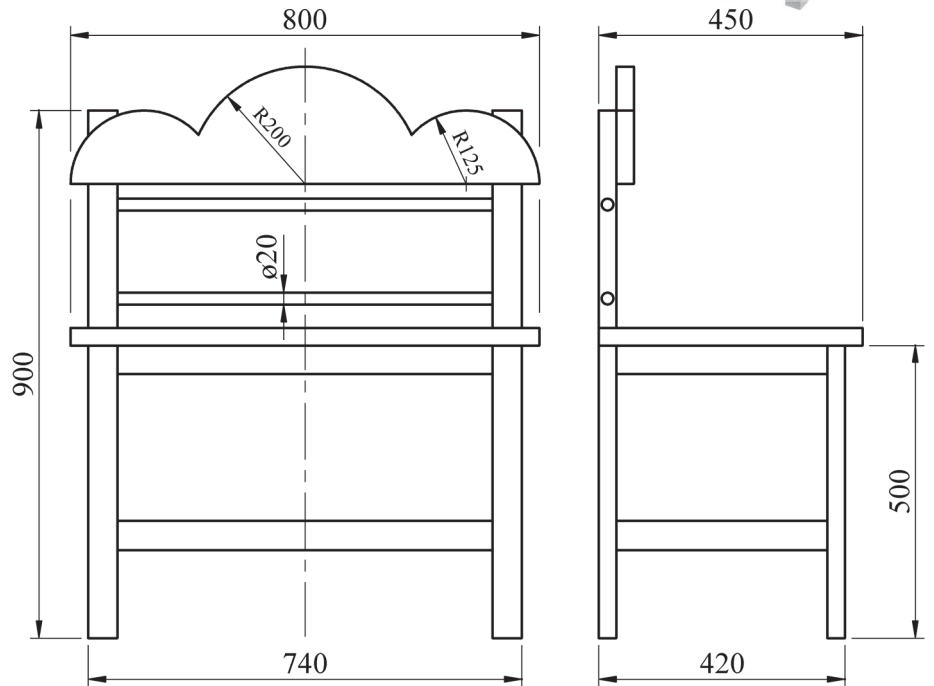
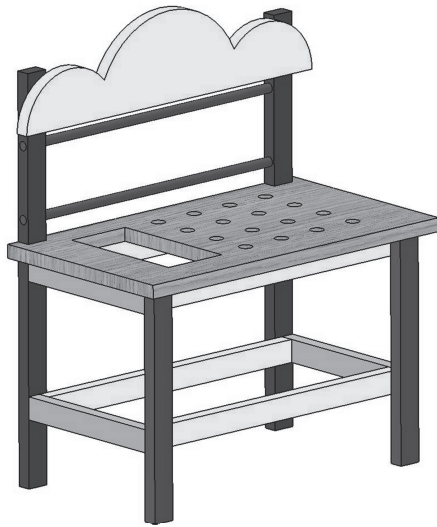




20. The image on the right shows a child's Workbench. A 3D graphic, together with a dimensioned Elevation and End View of a similar Workbench is shown below.

All frame material is 50mm × 30mm and all other material is 30mm thick. All joints are butt joints.

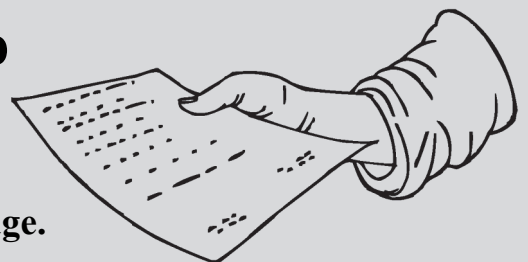
Complete the given cutting list.



Description	Quantity	Length	Width	Thickness
Front Legs		500	50	30
Back Legs	2	900	50	30
Cross Rails (front and back)	4	680		30
Side Rails (left and right)	4		50	30
Workbench Top	2	1	800	450
Curved Back Piece	1	800		30
	2	740	Ø20	

**This booklet must be handed up
at the end of the examination.**

Ensure your Examination Number is on the front page.



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Page**



Junior Certificate Examination, 2016

Materials Technology (Wood)
Higher Level
Section B (60 marks)

Monday, 20 June

Afternoon, 2:00 - 4:00

Instructions

- (a) Answer **three** questions. All questions carry equal marks.
- (b) You may answer either question 5A **or** question 5B but **not both** questions.
- (c) Where sketches are required, they should be done freehand.
- (d) Write your examination number on the answerbook and on all other pages used.
- (e) **Question 1** from this section must be answered on drawing paper.
All other questions should be answered on the answerbook supplied.

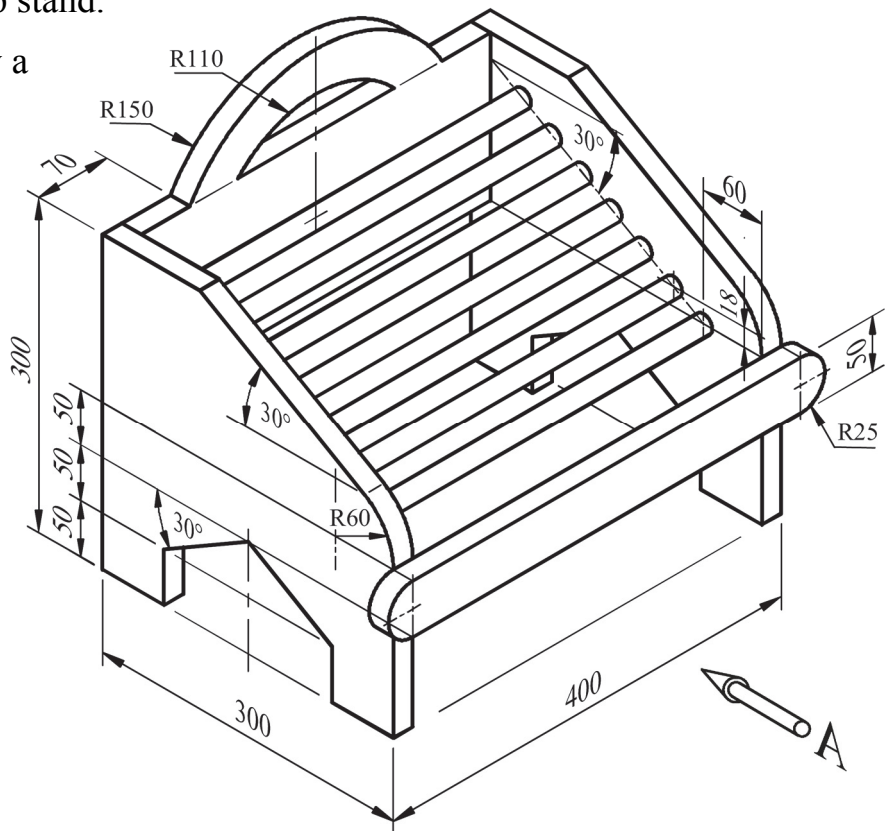
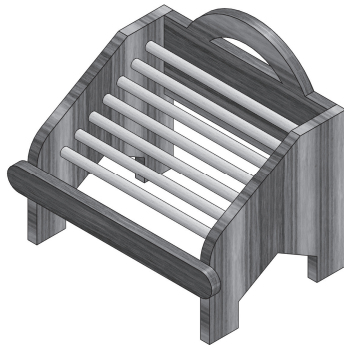
1. The diagram shows a laptop stand.

(i) To a scale of 1:2, draw a **front elevation** of the laptop stand in the direction of arrow A.

(ii) Project an **end view**.

Note: Hidden detail is not required.

(iii) Using notes and **neat freehand sketches**, suggest a suitable method of joining the back to the side of the laptop stand.



All material is 20mm thick and the seven dowels are 18mm in diameter.

2. (i) Two stages in a typical design process are **Analysis of Brief** and **Sketches/Working Drawings**. Explain these **TWO** stages.

(ii) The neat storage of toys and books is a requirement in many homes. The image on the right shows a typical collection of toys and books.

Using notes and **neat freehand sketches** to communicate your ideas, design a suitable **portable** wooden unit to store such items.

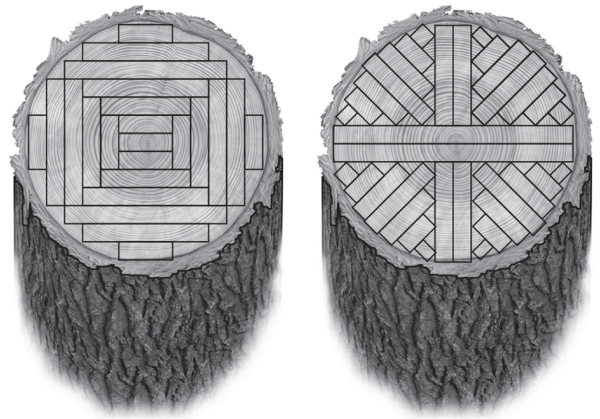


(iii) State **TWO** specific requirements that must be considered in the design of your proposed unit.

(iv) Describe, using notes and **neat freehand sketches**, how you incorporated these **TWO** requirements into your final design solution.

3. The diagrams show two methods of timber conversion.

- (i) Identify the conversion methods and give **TWO** advantages and **TWO** disadvantages of each method.
- (ii) Name, and describe using *a neat freehand sketch*, **ONE** other timber conversion method.

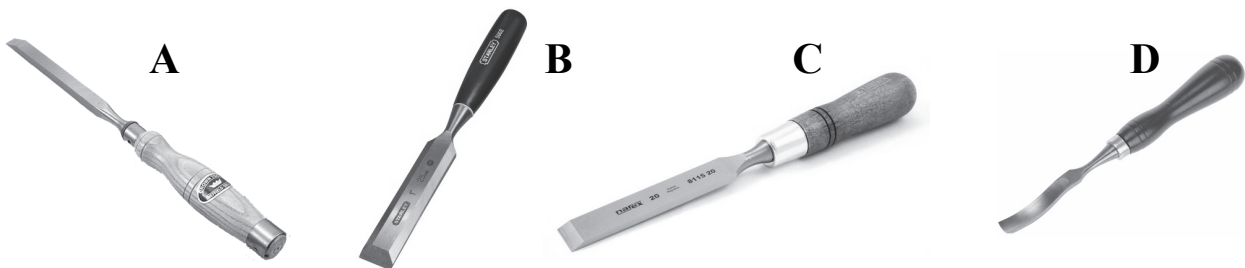


- (iii) Two types of timber decay are wet rot and dry rot. Describe the conditions necessary for **dry rot** to occur.

- (iv) Name **TWO** types of wood preservative and describe **THREE** methods of applying preservatives to wood.



4. The images show four different chisels.



- (i) State the correct name for each of the chisels labelled **A**, **B**, **C** and **D** and give a specific use for each chisel.
- (ii) The cutting edge of the chisel, shown below, has been damaged. Describe *in detail* with the aid of notes and *neat freehand sketches* the steps involved in re-sharpening the cutting edge of the chisel.
- (iii) With the aid of notes and *neat freehand sketches*, describe *in detail* the steps you would follow to mark out **and** remove a mortice in a typical mortice and tenon joint.



5. Answer 5A or 5B

5A. The diagram shows a woodturning lathe.

- (i) Name the parts labelled **A**, **B**, **C** and **D** and briefly describe the function of each part.
- (ii) State **THREE** specific safety precautions that should be observed when turning wood on a lathe.
- (iii) The image on the right shows a turned lamp. With the aid of notes and *neat freehand sketches*, describe how a hole could be formed in the body of the lamp to accommodate an electrical cable.
- (iv) Select an appropriate **clear** surface finish for the lamp and describe, in detail, how you would apply your chosen finish to the lamp.



OR

5B. The diagrams show a trinket box with a veneered design on the lid.

- (i) Describe how to transfer the design from a sheet of paper to the veneer.
- (ii) With the aid of notes and *neat freehand sketches*, describe how you would cut the veneers to ensure that they fit together accurately.
- (iii) Name **THREE** types of adhesive that could be used to apply the veneer, and describe how **ONE** of these adhesives is used.
- (iv) Name **TWO** methods of manufacturing veneers. With the aid of notes and *neat freehand sketches*, describe **ONE** of these manufacturing methods.

