



Junior Certificate Examination, 2012

Materials Technology - Wood
Higher Level
Section A (40 marks)

Monday, 18 June
Afternoon, 2.00 - 4.00

Instructions

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

Examination Number:

Centre Number

Section A

1

2

3

4

5(a) or 5(b)

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 from the list below.

Orbital Sander ☐

Jig Saw ☐

Band Saw ☐

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

USE



2. The board shown in the diagram has become distorted across its width.

- (i) What is this form of distortion called?

ANSWER

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- (ii) Give **ONE** possible reason for this type of distortion.

REASON

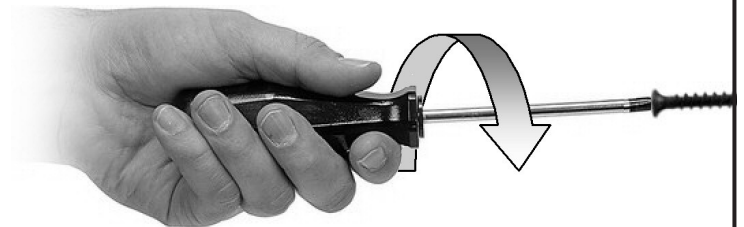


3. The diagram shows a screwdriver being used to insert a screw. Using a tick (✓) identify the force which is being applied to the screw.

Compression ☐

Tension ☐

Torsion ☐



4. **PVA** glue is often used in gluing MTW projects. What do the initials **PVA** stand for?

P

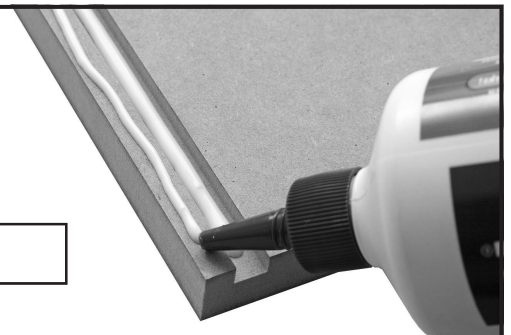
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V

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A

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5. **Aesthetics** is a term that is often used when evaluating finished MTW projects.

Explain the term **aesthetics**.



EXPLANATION

6. Identify, using a tick (✓), whether the following saws cut on the **Forward** stroke or the **Return** stroke.

Saws	Forward stroke	Return stroke
Tenon Saw		
Coping Saw		
Panel Saw		
Rip Saw		
Hacksaw		



7. (i) Name the woodworking tool shown in the diagram.

NAME

- (ii) Give an appropriate use for this tool.

USE



8. The diagram shows a CNC router that is controlled by a computer.

Give **TWO** reasons for using a CNC router in a workshop.



REASON 1

REASON 2

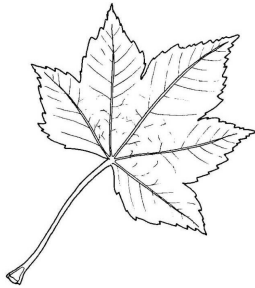
9. **Microporous** finishes are widely used on garden furniture.

Describe how **microporous** finishes protect wood.

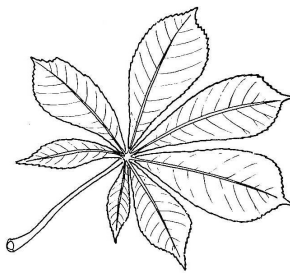


ANSWER

10. The diagrams show the leaves of three common Irish trees.
In the spaces provided, name the trees.



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11. (i) Name the plane shown in the diagram.

NAME

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- (ii) Give an appropriate use for this particular type of plane.

USE

12. (i) Name the power tool shown in the diagram.

NAME

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- (ii) Give an appropriate use for this power tool.

USE



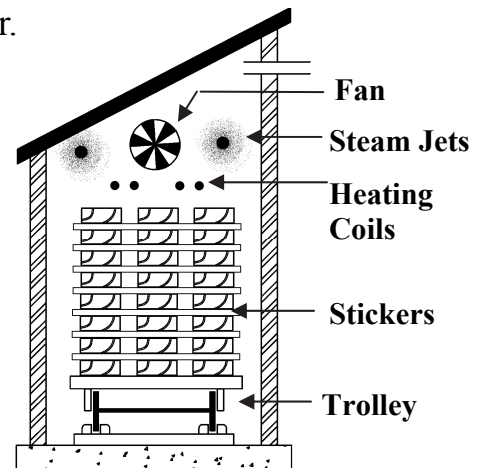
13. The diagram shows a method of seasoning timber.

(i) What is this method called?

METHOD

(ii) Explain the function of the **stickers**.

FUNCTION



14. Using a tick (✓) indicate which of the following plastics are **Thermosetting** or **Thermoplastics**.

Plastics	Thermosetting	Thermoplastic
Acrylic		
Polystyrene		
Epoxy Resin		
Nylon		
Polythene		

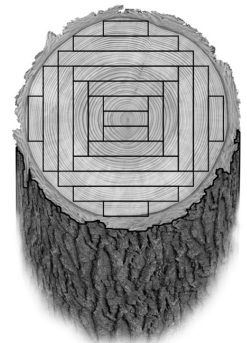


15. (i) Name the method of timber conversion shown in the diagram.

NAME

(ii) State **ONE** advantage of this method of conversion.

ADVANTAGE



16. Give **TWO** reasons why it is necessary to apply a finish to a wooden artefact.

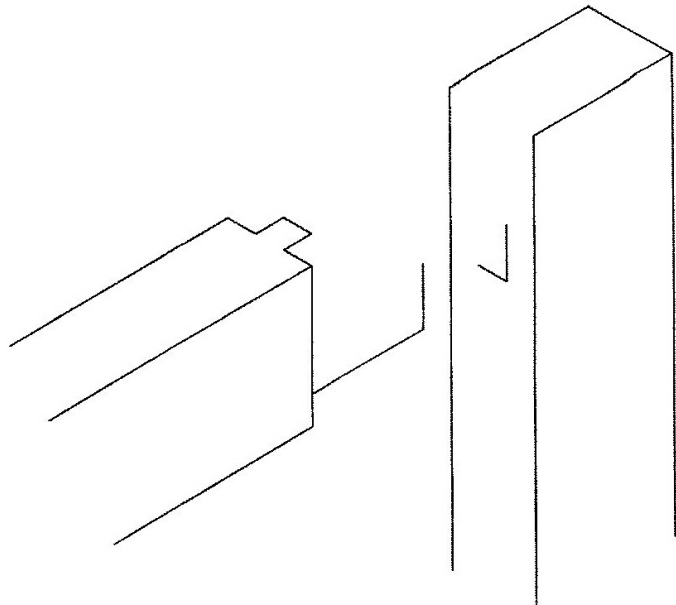
REASON 1

REASON 2



17. The diagram shows an incomplete exploded isometric sketch of a **Haunched Mortice and Tenon Joint**.

Complete the sketch of the joint.



18. (i) Name the woodworking machine shown in the diagram.

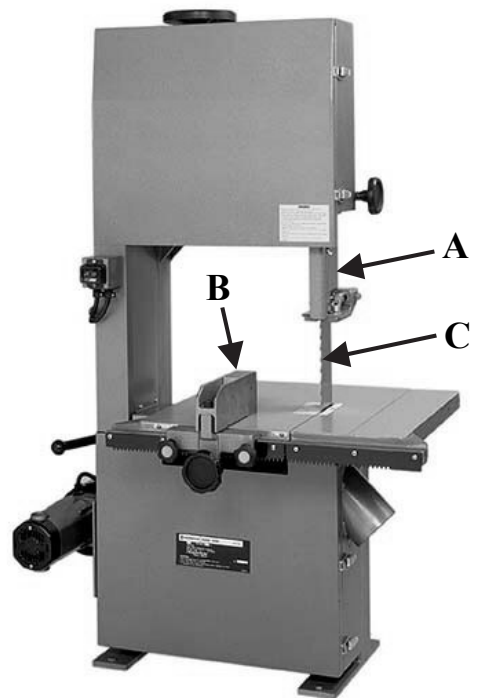
NAME

- (ii) Name the parts labelled A, B and C.

A

B

C



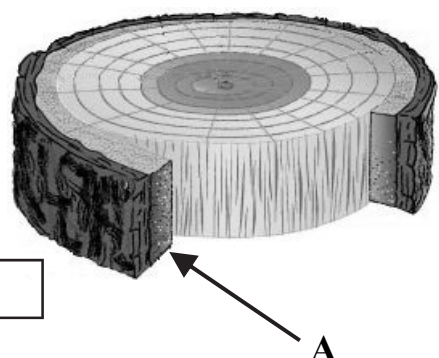
19. The diagram shows a cross section through the trunk of a tree.

- (i) Name the part labelled A.

NAME

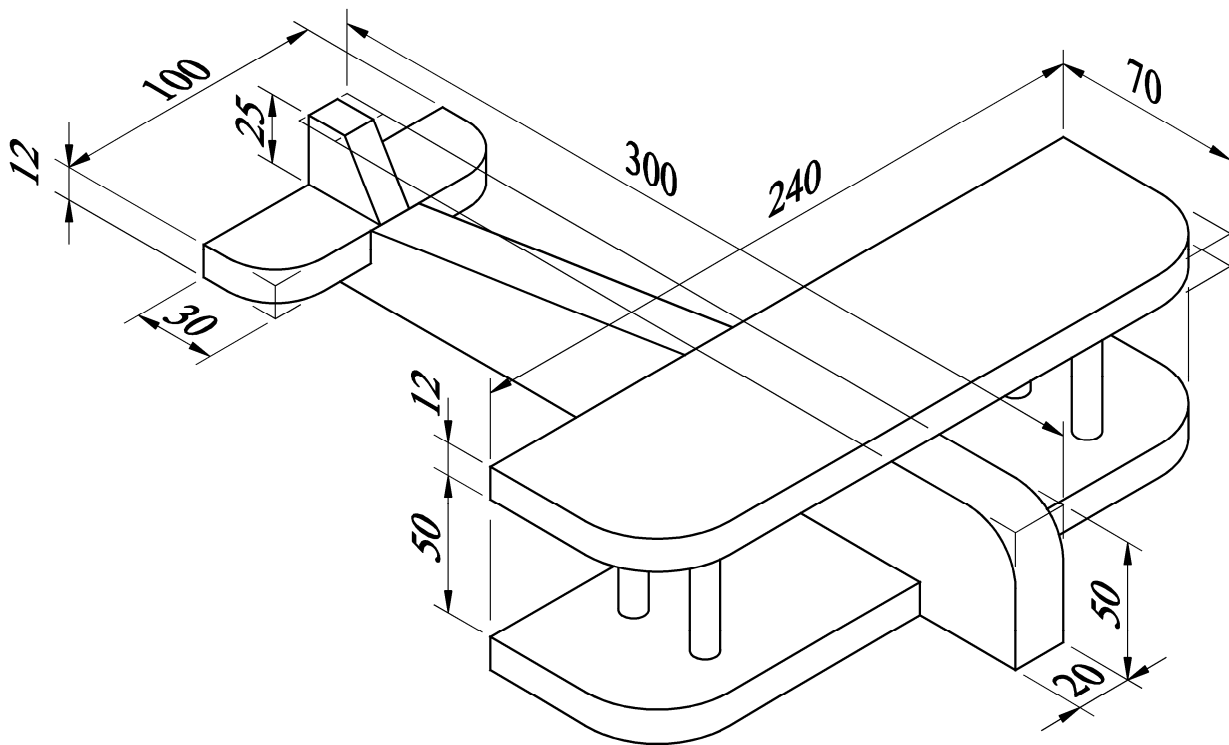
- (ii) State the function of part A.

FUNCTION



20. The dimensioned drawing shows a toy aeroplane made from wood.

Complete the cutting list below.



Description	Quantity	Length	Width	Thickness
Body	1	300	50	
Wings	2	240		12
Tail	1	100	30	
Fin	1		25	12
Dowels		62	Ø6	

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

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Junior Certificate Examination, 2012

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

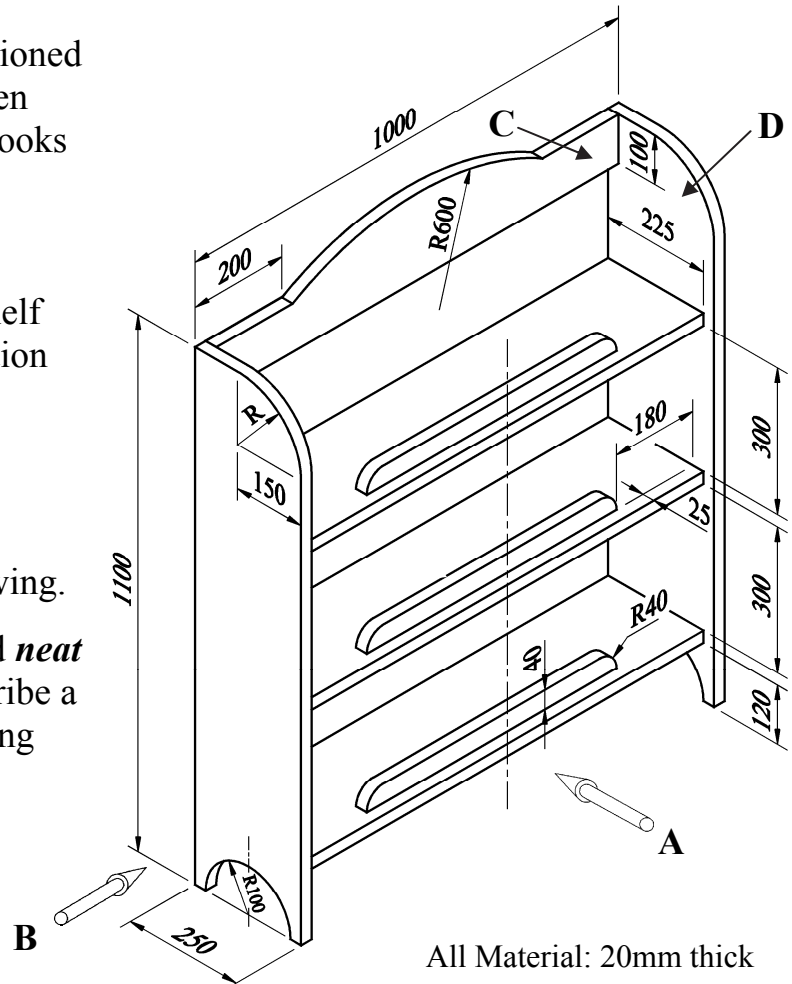
Monday, 18 June
Afternoon, 2.00 - 4.00

Instructions

- (a) Answer **three** questions. All questions carry equal marks.
- (b) You may answer either question 5A **or** question 5B but **not both** of them.
- (c) Where sketches are required they may be done freehand or on the graph paper provided.
- (d) Write your examination number on the answer book 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 answer book supplied.

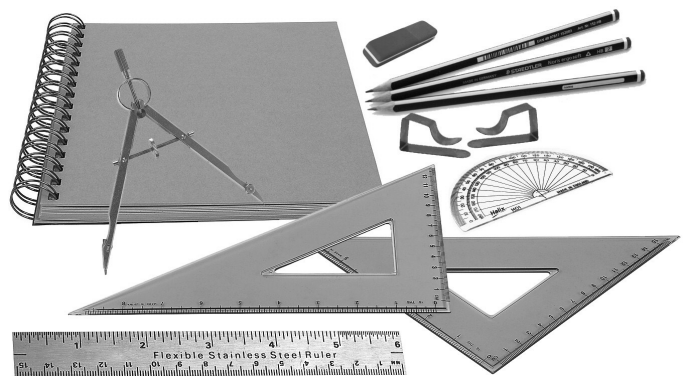
1. The diagram shows a dimensioned isometric drawing of a wooden shelf unit for the storage of books and toys.

- (i) To a scale of 1:5, draw a **front elevation** of the shelf unit looking in the direction of arrow **A** and an **end elevation** looking in the direction of arrow **B**.
Include **FOUR** main dimensions on your drawing.
- (ii) With the aid of notes and *neat freehand sketches*, describe a suitable method of jointing the members **C** and **D**.



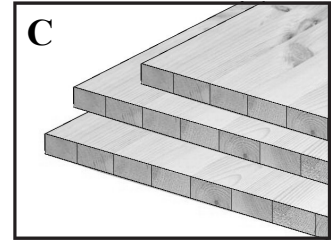
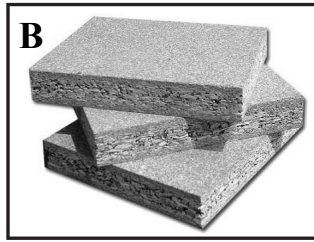
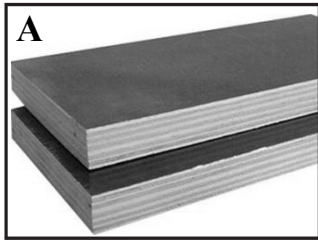
2. (i) Two stages in a typical design process are **Sketches/Working Drawings** and **Design Ideas/Solutions**. Explain these **TWO** stages.

- (ii) The diagram shows a selection of drawing equipment that is used by MTW students to produce working drawings.
Using notes and *neat freehand sketches* to communicate your ideas, design a suitable wooden portable storage unit for these items. The unit should incorporate a sloping drawing board surface that can adjusted to different angles.



- (iii) Describe using notes and *neat freehand sketches* how you specifically incorporated the following requirements into your final design solution.
 - (a) The portability of the unit
 - (b) The adjustable sloping surface.

3. (i) Name the **THREE** manufactured boards labelled A, B, and C below.



- (ii) Briefly explain **FOUR** advantages that manufactured boards have over solid wooden boards.
- (iii) With the aid of notes and *neat freehand sketches* describe, in detail, the manufacture of **ONE** of the above boards.
- (iv) Deforestation of our tropical rainforests is an important environmental issue. With reference to protection and conservation:
- (a) State **TWO** reasons why we should conserve our tropical rainforests
 - (b) State **TWO** ways that the use of manufactured boards can help reduce the current rate of global deforestation.

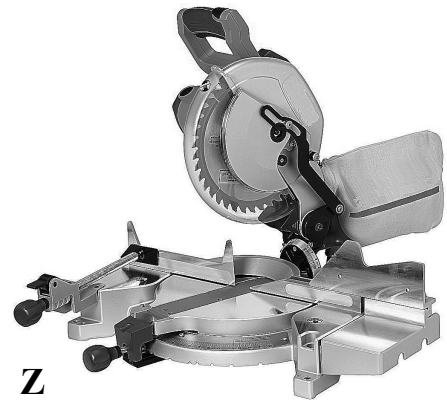
4. (i) State the correct name for the power tools labelled X, Y and Z below.



X



Y



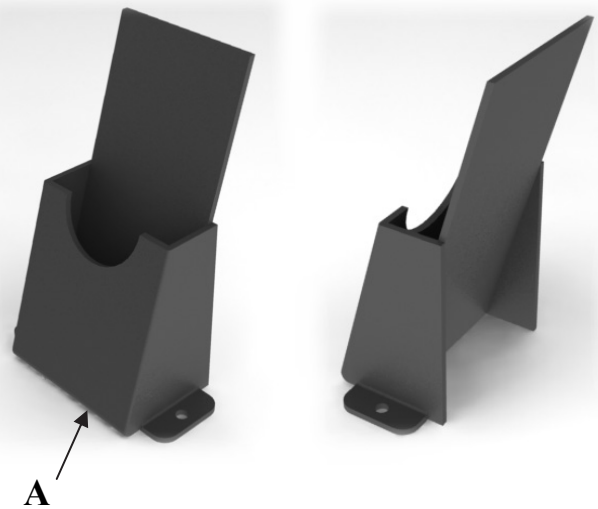
Z

- (ii) (a) The power tool labelled X above incorporates a “*keyless chuck*”. Explain what is meant by the term “*keyless chuck*” and state **TWO** advantages that it has over a traditional chuck.
- (b) This power tool is often used to make holes of a specific required depth in wood. With the aid of notes and *neat freehand sketches* describe how this could be done.
- (iii) State **THREE** safety precautions that should be observed when a person is using the piece of equipment labelled Y above and briefly outline the reason for each precaution.

5. Answer 5A or 5B

5A. The diagrams show two views of an acrylic display holder for brochures.

- (i) Using a *neat freehand sketch*, draw the development that would be marked out on the acrylic sheet in order to manufacture this holder.
- (ii) Name the machine that would be used to soften the acrylic so that it can be bent easily to form this holder.
- (iii) Using notes and *neat freehand sketches* describe how you would use the machine to create the bend at A to a required angle.
- (iv) The diagrams show holes in the base of the holder. List **THREE** specific safety precautions that should be followed when drilling holes in acrylic.



OR

5B. The diagram shows a picture of two dolphins made from veneers (marquetry).

- (i) With the aid of notes and *neat freehand sketches* describe how you would transfer the picture from a sheet of paper onto the veneers.
- (ii) Using notes and *neat freehand sketches* describe how to cut the veneers for this picture to ensure that they fit accurately.
- (iii) Name a suitable adhesive for applying the veneers to the base and give a reason for your answer.
- (iv) Name **ONE** method of manufacturing veneers and describe the process using a *neat freehand sketch*.

