



Junior Certificate Examination, 2003

Materials Technology (Wood)

Monday 16 June - Morning 9.30 - 11.30

**Section A- Higher Level
40 marks**

Examination number.

INSTRUCTIONS

1. Answer any 16 questions from this section. All questions carry equal marks.
2. Answer questions in the spaces provided.
3. Write your examination number in the box provided and on all other pages used.
4. This booklet must be handed up at the end of the examination.

FOR EXAMINER'S USE	
SECTION A- TOTAL	
1.	
2.	
3.	
4(a) or (b).	
5.	
Overall Total.	

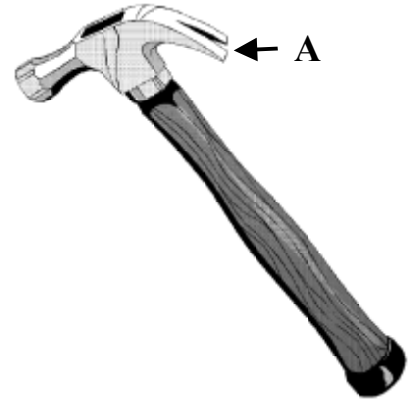
Centre number.

**THIS BOOKLET MUST BE
HANDED UP**

SECTION A - 40 MARKS

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

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

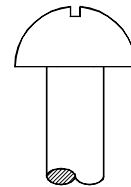
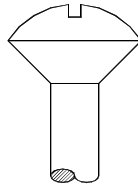
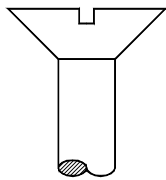


ANSWER

- (ii) State an appropriate use for part A of this tool.

USE

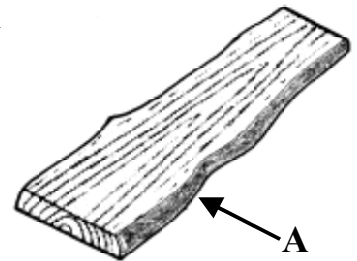
2. The diagrams below show three different types of screw head. In the spaces provided, name any **TWO** of the head types.



3. (i) What is the correct name for the timber feature shown at A in the diagram?

ANSWER

- (ii) Boards with this feature are generally more prone to insect and fungal attack. Why might this be so?



REASON

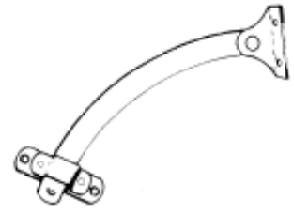
4. The steps involved in preparing a new wooden rowing boat for an oil based paint finish are listed below. Place them in the correct order.

UNDERCOATING	1.
PRIMING	2.
FILLING	3.



5. (i) Name the fitting shown in the diagram.

NAME

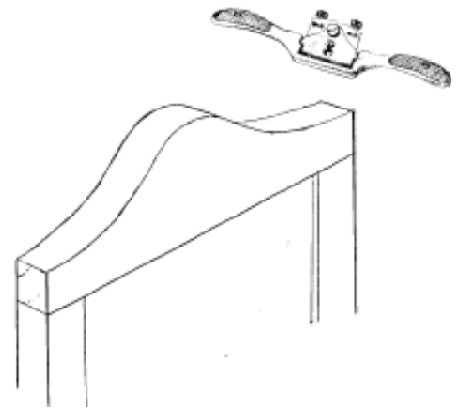


- (ii) Where would this type of fitting normally be used?

ANSWER

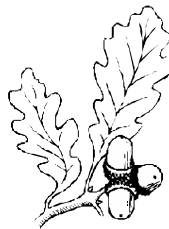
6. The diagram shows part of a curved mirror frame that is to be shaped with spokeshaves.

With the aid of arrows, indicate the correct directions in which the curves should be worked.



7. The diagrams show the leaves and fruit of three common Irish trees. Name any **TWO** of the trees in the spaces provided.







8. The diagram shows a woodworking machine.

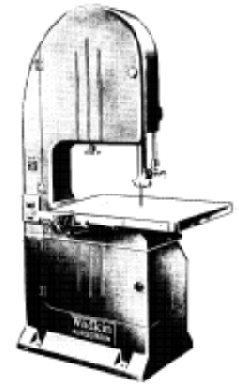
(i) What is the correct name for this machine?

ANSWER

(ii) State **ONE** specific safety precaution that should be observed when using this type of machine, and give a reason for your answer.

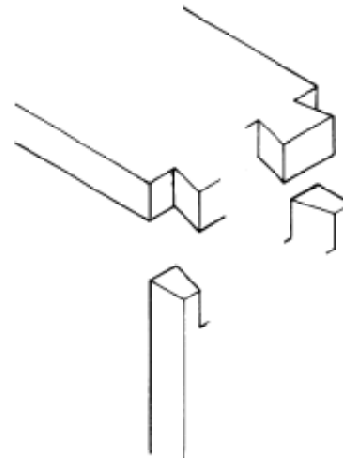
PRECAUTION

REASON



9. The diagram shows an incomplete exploded isometric sketch of a box dovetail joint.

Complete the sketch of this joint.



10. The diagram shows part of the drive pulley arrangement in a wood turning lathe.

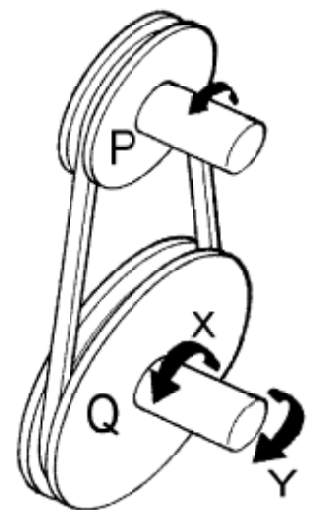
(i) Pulley wheel P rotates in the direction shown. Which arrow, X or Y shows the correct rotational direction of pulley wheel Q?

ANSWER

(ii) If P rotates at 90 revolutions per minute, at what speed will Q rotate?

ANSWER

20 CM Diameter

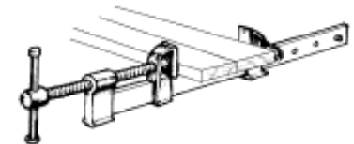


30 CM Diameter

11. In the spaces provided, state whether the following plastics are either *Thermoplastic* or *Thermosetting*.

POLYSTYRENE
 ACRYLIC
 POLYURETHANE

12. The diagram shows two boards being edge-jointed with the aid of sash cramps.

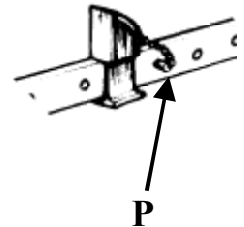


(i) What is the correct name for the force applied by the sash cramps to the boards shown in the diagram?

ANSWER

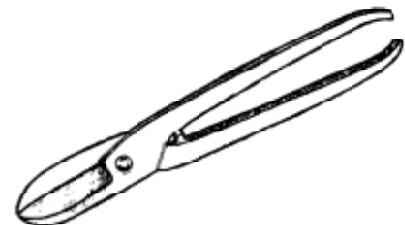
(ii) What force acts on the pin P when the cramp is in use?

ANSWER



13. (i) Name the metalworking tool shown in the diagram.

ANSWER

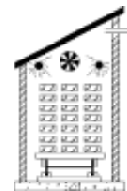


(ii) State an appropriate use for this tool.

ANSWER

14. EMC is a term associated with the *seasoning* or *drying* of timber. What do the letters EMC stand for?

E
 M
 C

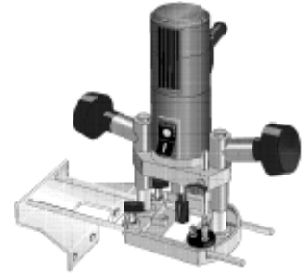


15. (i) Name the power tool shown in the diagram.

ANSWER

(ii) State an appropriate use for this power tool.

ANSWER



16. The diagram shows a timber climbing frame, similar to those found in a children's playground.

(i) Suggest a suitable adhesive that might be used when constructing the frame.

ANSWER

(ii) Describe **ONE** property of the adhesive that makes it appropriate for use in this situation.

PROPERTY



17. Describe **THREE** appropriate uses that may be made of computers in the furniture industry.

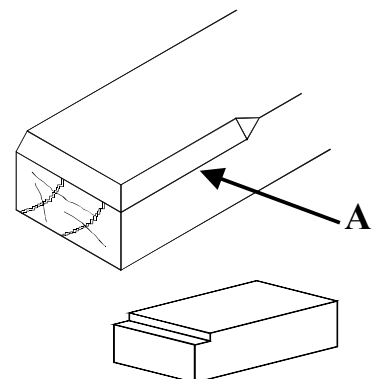
1.
2.
3.

18. (i) Name the moulding shown at A in the diagram.

ANSWER

(ii) What is the correct name for the tool shown that is used when marking out such a moulding?

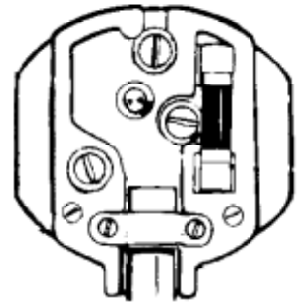
ANSWER



19. The diagram shows the wiring terminals in a three pin plug.

- (i) Indicate, using an **X**, the **EARTH** terminal, and state what is the correct colour coding for the wire connected to it.

COLOUR CODING



- (ii) Most electrical devices are *earthed*. Why is this?

ANSWER

20. Cellulose based lacquers are commonly applied to timber artefacts by spraying.



State **TWO** safety precautions that must be observed when applying finishes in this manner.

1.

2.

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

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Junior Certificate Examination, 2003

Materials Technology (Wood)

Monday 16 June - Morning 9.30 - 11.30

Section B - Higher Level

60 Marks

INSTRUCTIONS

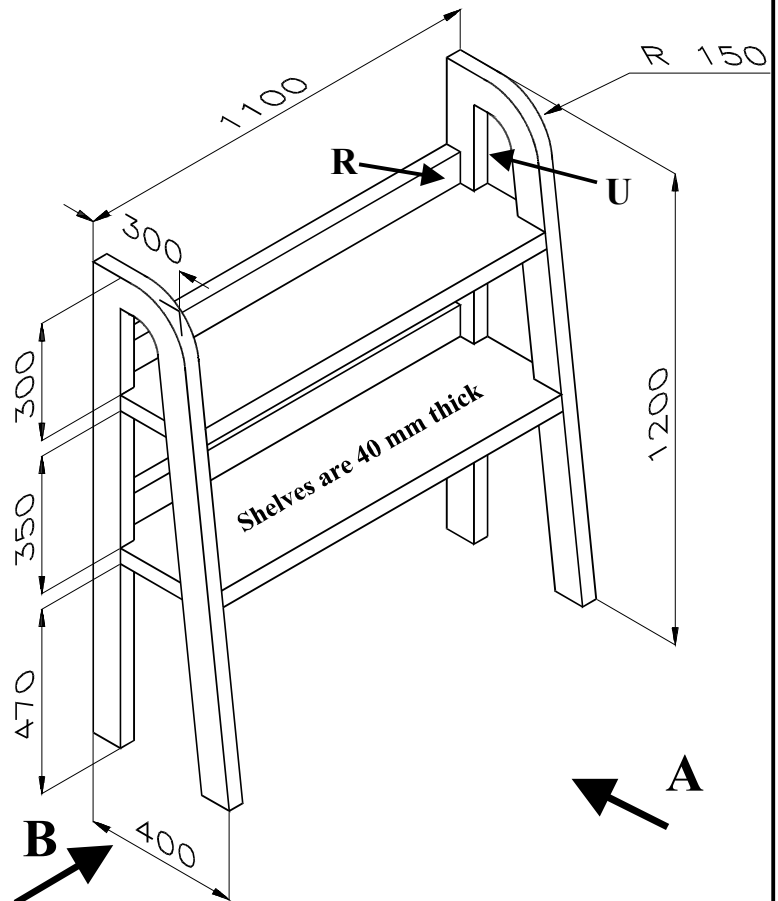
1. Answer any **THREE** questions from this section. All questions carry equal marks.
2. Where sketches are required they may be done freehand or on the graph paper provided.
3. Write your examination number on the answer book and on any other sheets used.

1. The diagram shows a dimensioned isometric drawing of a book shelving unit made from oak.

- (i) Prepare, to a scale of 1:10, an orthographic working drawing of the shelving unit, consisting of a **front elevation** looking in the direction of arrow **A** and an **end elevation** looking in the direction of arrow **B**. (All frame material is 80mm x 40mm)

- (ii) With the aid of *neat freehand sketches*, describe a suitable method of joining the rail **R** to the upright **U**.

- (iii) With the aid of notes and *neat freehand sketches*, describe a design modification to the unit that would prevent books falling through its open sides.



2. (i) Given in the following list are a number of steps usually undertaken in a design process.

Evaluation **Sketches/Working Drawings** **Analysis of Brief**

Investigation and Research

Design Ideas/Solution

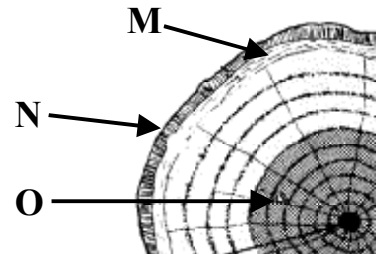
Place these steps in the order that they would normally be undertaken and write a short note explaining any **TWO**.

- (ii) The diagram shows materials and equipment used by a student when doing homework and study. Using notes and *neat freehand sketches* to communicate your ideas, design a suitable desktop unit that incorporates storage for these items and that would support a book at an appropriate reading angle.



- (iii) Suggest a suitable material from which your design could be manufactured, and an appropriate applied finish for the unit. State **TWO** reasons for **each** of your choices.

3. (i) Name the parts of the tree cross-section labelled **M**, **N**, and **O**, and state the function of each.



- (ii) Shown in the diagram is a map of the world divided into *zones* or *regions* labelled **A**, **B**, **C**, and **D**.

What is the main classification of trees that grow in Zone C?

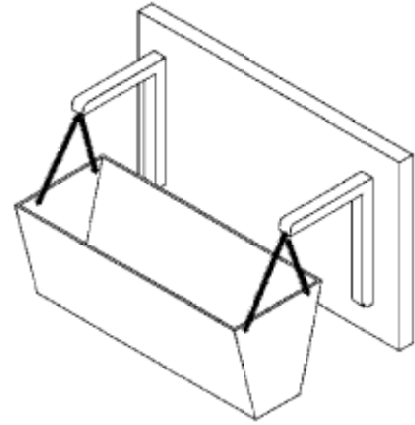
- (iii) Compare trees most commonly found in Zone A with those in Zone C under the headings *Leaves*, *Seeds*, *Timber* and *Root System*.



- (iv) How can the use of manufactured boards contribute to a reduction in the rate of deforestation that is currently taking place in Zone C?

4. Answer either A or B.

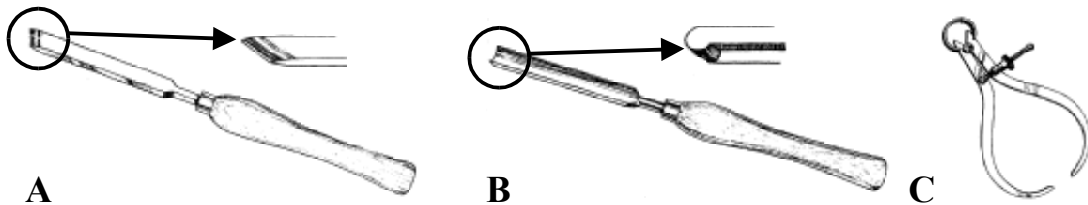
- (A) The diagram shows a wall hanging plant holder. The unit consists of a container manufactured from acrylic and suspended by chains from aluminium brackets. The brackets are fixed to a wall mounted hardwood back.



- (i) Aluminium is a **NON-FERROUS** metal. State **TWO** differences between *ferrous* and *non-ferrous* metals.
- (ii) With the aid of notes and *neat freehand sketches*, show the development that would be marked out on the acrylic sheet in order to manufacture the container.
- (iii) Select an appropriate hardwood for the back and give **ONE** reason for your selection.
- (iv) The brackets are to be fixed to the hardwood back with countersunk screws. Describe, with the aid of notes and *neat freehand sketches*, how you would drill the appropriate holes in the brackets and in the hardwood back for the insertion of the screws.

OR

- (B) (i) What are the correct names for the wood turning tools labelled A, B and C? State the correct use for each.

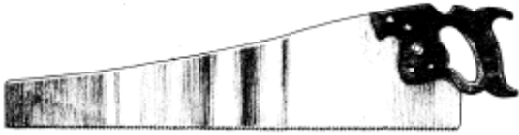


- (ii) The diagram shows a table lamp turned from elm. With the aid of notes and *neat freehand sketches*, describe how you would **prepare** a block of timber and **mount** it on the lathe to turn the lamp.
- (iii) With the aid of notes and *neat freehand sketches*, describe how a hole could be formed in the body of the lamp to accommodate the electrical flex.



- (iv) Which of the following speeds would be most appropriate for turning this lamp, **150 RPM**, **450 RPM** or **1200 RPM**? Give a reason for your answer.

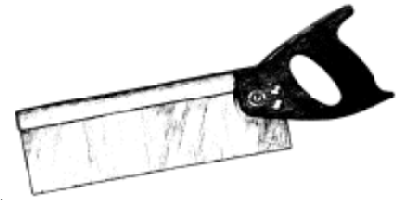
5. (i) The diagrams show three different types of saw. State the correct names for the saws labelled **A**, **B** and **C**, and give an appropriate use for each.



A

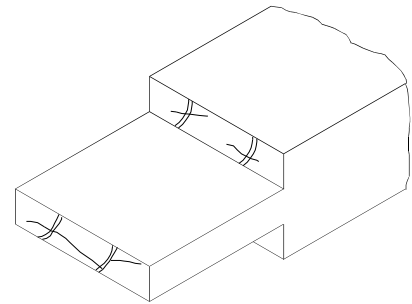


B



C

- (ii) The diagram shows the **Tenon** portion of a Mortise and Tenon joint. With the aid of notes and *neat freehand sketches*, describe the steps that should be taken in **marking out** and **cutting** the tenon.



- (iii) Explain what is meant by the term “**Saw-Kerf**”.

- (iv) Shown in the diagram is a close up view of the teeth of a saw. The teeth are bent alternately to the left and right of the centreline of the saw blade. What name is given to this feature, and what function does it serve?

