Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination 2004

Materials Technology Wood
Higher Level
Section A (40 Marks)

Monday 21 June
Morning, 9.30 to 11.30

Centre Number

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.*

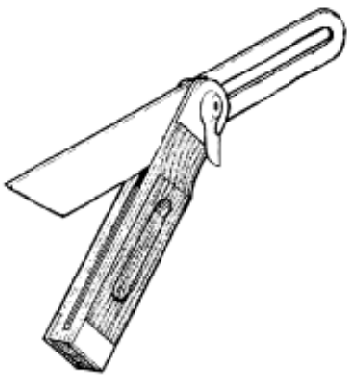
Section A	
1	
2	
3	
4(a) or (b)	
5	
Total	

Examination Number:

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.

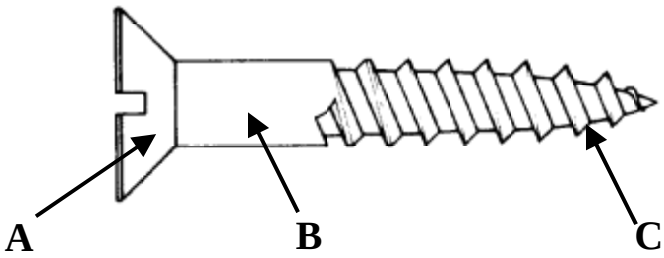


ANSWER

(ii) State the correct use for this tool.

USE

2. Shown in the diagram is a steel woodscrew. In the spaces provided, name the parts of the screw labelled **A**, **B**, and **C**.

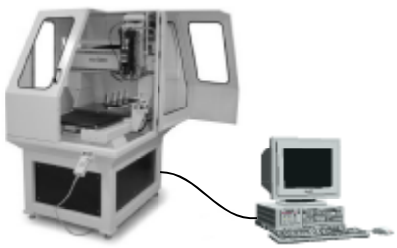


A

B

C

3. The diagram shows a CNC router.
State **TWO** advantages of using computers to control machines in this way.



ADVANTAGE 1

ADVANTAGE 2

4. The diagram shows a wooden garden seat.

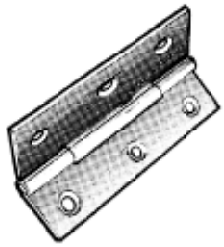
(i) Suggest a suitable applied finish for the seat.

FINISH

(ii) State **ONE** reason for your choice of finish.

REASON

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

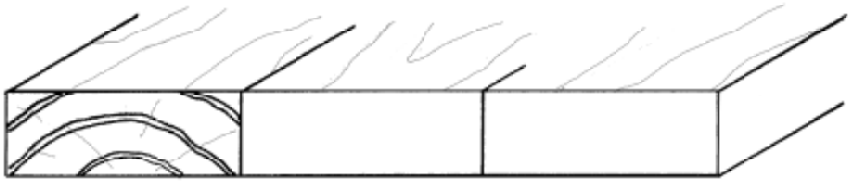


NAME

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

ANSWER

6. The diagram shows three boards that are to be edge-jointed to form a wider panel. The end grain is shown on one of the boards. On the diagram indicate the end grain pattern of the other boards which would minimise distortion of the panel.



7. Shown are the outline and leaves of three common Irish trees. State whether the timber produced by each tree is either (a) **Hardwood**, or (b) **Softwood**.

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

ANSWER _____

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

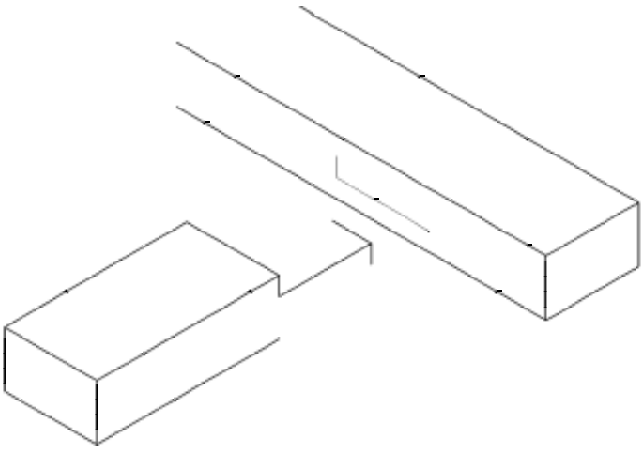
PRECAUTION _____

REASON _____

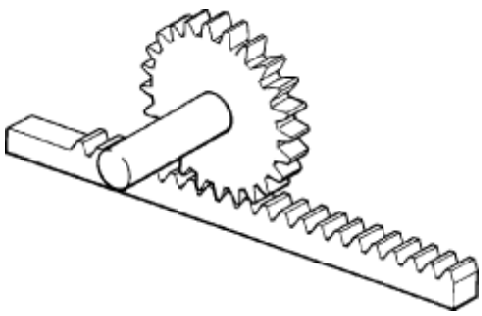
_____

9. The diagram shows an incomplete exploded isometric sketch of a mortise and tenon joint.

Complete the sketch of this joint.



10. (i) What is the correct name for the gear mechanism shown in the diagram?

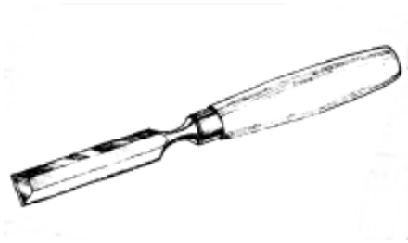


ANSWER _____

(ii) Name a woodworking machine in which this mechanism is used.

ANSWER _____

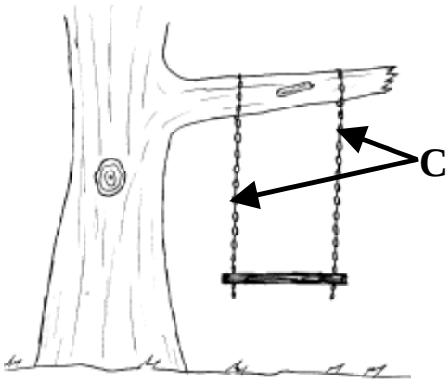
11. State **TWO** safety precautions that should be observed when using a woodworking chisel.



PRECAUTION 1

PRECAUTION 2

12. The diagram shows a child's swing. Name the force acting on the chains, **C**, when a child is sitting on the swing.



FORCE

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

NAME

(ii) State an appropriate use for this tool.

USE

14. (i) From the list given, select a suitable material for the manufacture of the photograph frame shown in the diagram.

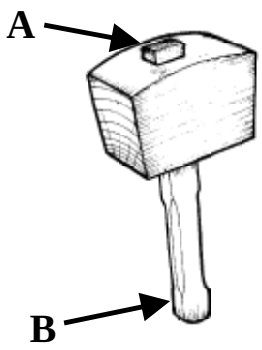
Polyurethane Foam **Acrylic**
Expanded Polystyrene **Urea Formaldehyde**

MATERIAL

(ii) Give a reason for your answer

REASON

15. (i) From what wood is a woodworking mallet usually made?



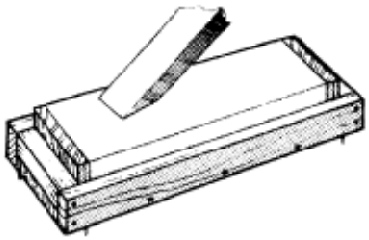
ANSWER _____

(ii) Why is the handle of the mallet wider at **A** than at **B**?

ANSWER _____

_____

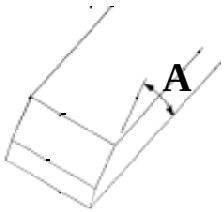
16. The diagram shows the cutting edge of a chisel being sharpened on an oilstone.



(i) State **ONE** function of the oil when sharpening the cutting edge.

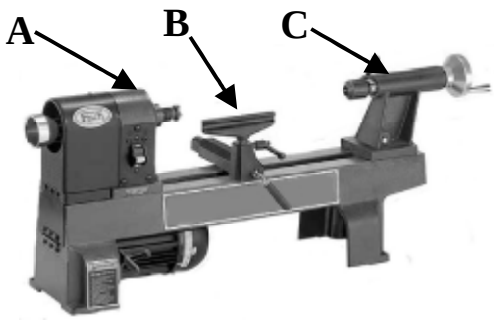
FUNCTION _____

(ii) What is the correct **GRINDING** angle, (A) for the cutting edge when re-sharpening?



ANGLE _____ **^{0}(Degrees)**

17. Name the parts of the woodturning lathe labelled **A**, **B** and **C**.

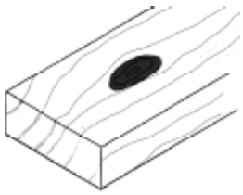


A. _____

B. _____

C. _____

18. Two types of knot are found in timber, live knots and dead knots. What is a **DEAD** knot?



ANSWER _____

_____

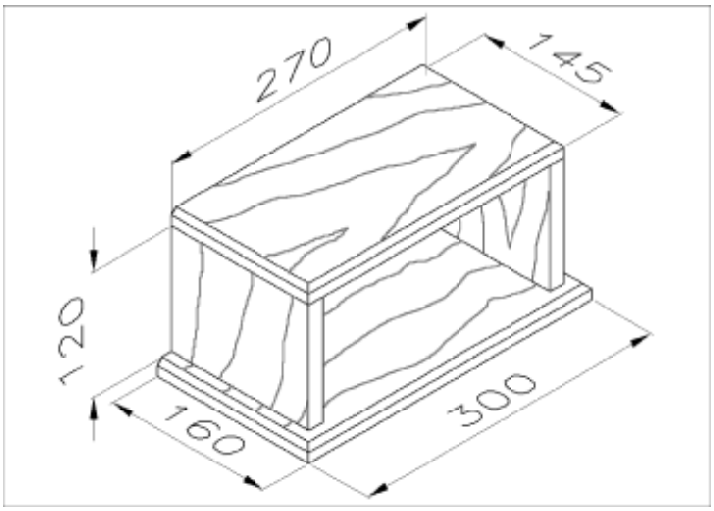
19. The diagram shows an unsafe arrangement of electrical plugs connected to a wall socket. From the diagram, identify **TWO** safety hazards in this arrangement.

HAZARD 1

HAZARD 2

20. The diagram shows a simple CD storage unit manufactured from beech.

Complete the following cutting list for the unit.



DESCRIPTION	NUMBER	L	W	T
Sides	2	120		15
Top	1		145	15
Bottom	1			

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

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Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination 2004

Materials Technology Wood

Higher Level

Section B (60 Marks)

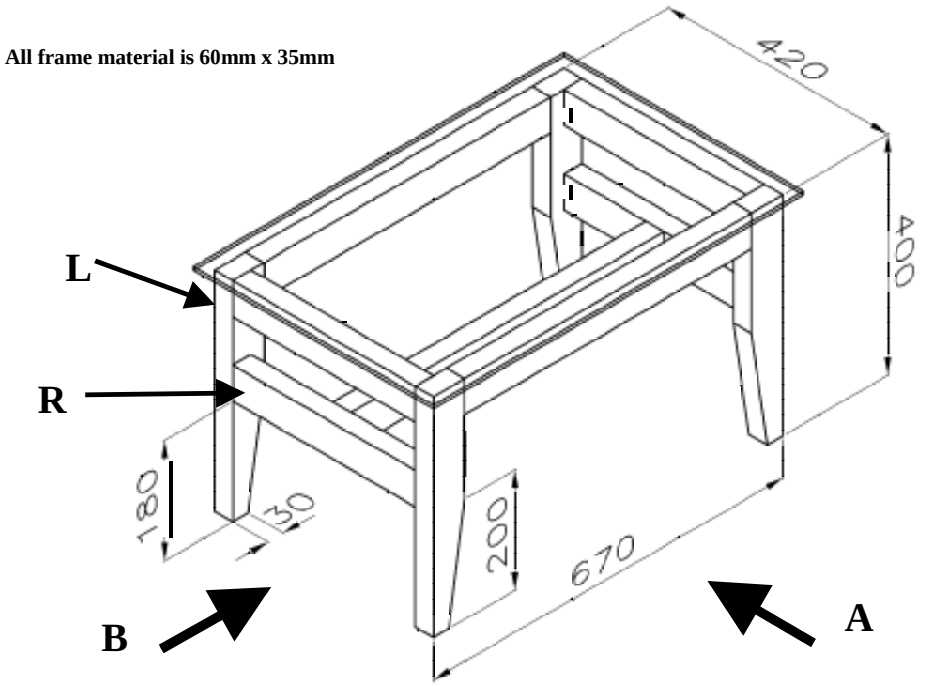
Instructions

(a) *Answer* **any** *three questions. All questions carry equal marks.*

(b) *Where sketches are required they may be done freehand or on the graph paper provided.*

(c) *Write your examination number on the answer book and on all other pages used.*

1. The diagram shows a dimensioned isometric drawing of a coffee table with a glass top. The frame is made from cherry.



(i) Prepare, to a scale of 1:5, an orthographic working drawing of the wooden frame, consisting of a **front elevation** looking in the direction of arrow **A** and an **end elevation** looking in the direction of arrow **B**. Your drawing should include **FOUR** main dimensions.

(ii) With the aid of notes and ***neat freehand sketches***, describe a suitable method of joining the rail **R** to the leg **L**.

2. (i) Two of the steps in a process of design are **Working Drawings** and **Evaluation**. Explain these two terms.

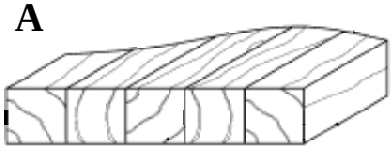
(ii) The diagram shows a collection of magazines and remote control units, similar to those found in most homes.
Using notes and ***neat freehand sketches,*** design a suitable unit to store such magazines, and which will also incorporate storage for remote controls.

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

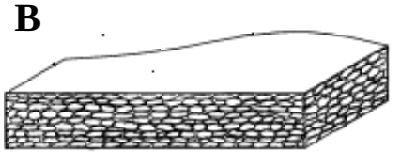
(iv) Describe, using notes and ***neat freehand sketches***, how you incorporated these design requirements into your solution.

3. (i) Name the three manufactured boards, **A**, **B**, and **C**, shown in the diagrams.

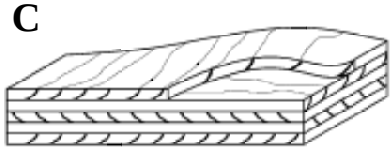
A



B



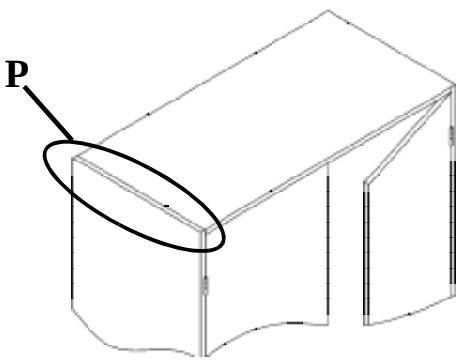
C



(ii) State **FOUR** advantages associated with the use of manufactured boards.

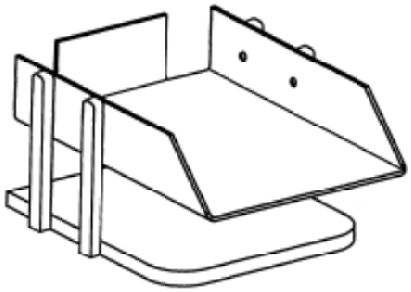
(iii) With the aid of notes and ***neat freehand sketches***, describe, in detail, the production of **ONE** of the manufactured boards shown above.

(iv) The diagram shows the corner of a wardrobe made from manufactured board. With the aid of notes and ***neat freehand sketches***, describe **TWO** suitable jointing methods that could be used at corner **P**.



4. Answer <u>either</u> A or B.

A The diagram shows a desk tidy consisting of an acrylic tray with a base and supports made from hardwood.



(i) With the aid of a ***neat freehand sketch***, show the development that would be marked out on the acrylic sheet in order to manufacture the tray.

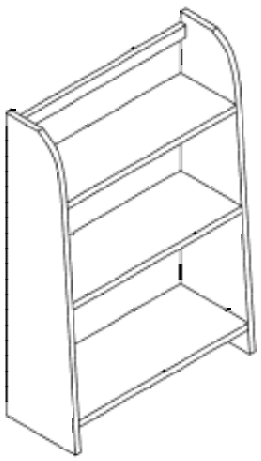
(ii) The tray is to be fixed to the hardwood supports using screws. Describe, with the aid of notes and ***neat freehand sketches***, how you would drill the appropriate holes in the tray and in the hardwood supports for the insertion of the screws.

(iii) The front corners of the hardwood base are shaped as shown in the diagram. Describe, with the aid of notes and ***neat freehand sketches***, how you would **CUT OUT** and **FINISH** the corners.

(iv) In use, the tray was found to move forwards and backwards. Suggest a design modification that would prevent this from happening.

OR

B The diagram shows a shelving unit.



(i) Select a wood suitable for the manufacture of the shelving unit.
Give **TWO** reasons for your choice of wood.

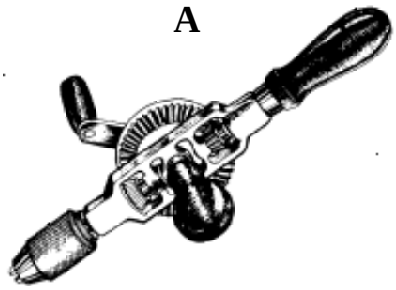
(ii) Select a suitable applied finish for the unit.
Give **TWO** reasons in support of your choice of finish.

(iii) With the aid of notes and ***neat freehand sketches***, describe how you would **PREPARE** the surface for the application of your chosen finish.

(iv) To accommodate items of different heights, the shelves should be adjustable. With the aid of ***neat freehand*** sketches, describe one method that could be used to achieve this adjustment.

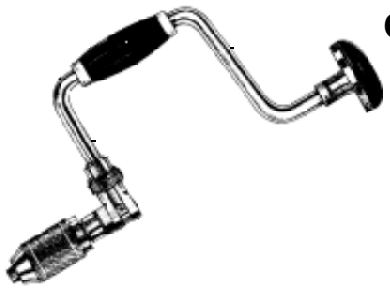
5. (i) The diagrams show three wood boring tools. State the correct names for the implements labelled **A**, **B** and **C**.

A



B

C



(ii) With the aid of notes and ***neat freehand sketches***, describe how you would bore the following holes:

(a) A hole of 25mm diameter through a piece of hardwood 40mm thick.

(b) A hole of 20mm diameter to a depth of 40mm in a piece of hardwood 100mm thick.

(c) A hole of 12mm diameter through a piece of acrylic 6mm thick.

(iii) Cordless drills are often used in woodwork. State **TWO** advantages and **TWO** disadvantages associated with the use of cordless drills.

(iv) Give the correct names for the drill bits labelled **P**, **Q** and **R** shown in the diagrams, and state which of the drill bits are suitable for use with a cordless drill. Give reasons for your answer.

P

Q

R