



Junior Certificate Examination 2005

Materials Technology Wood
Higher Level
Section A (40 Marks)

Monday 20 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:

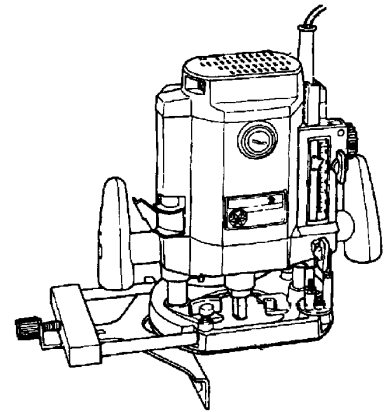
Centre Number	
Section A	
1	
2	
3	
4(a) or (b)	
5	
Total	

SECTION A - 40 MARKS

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

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

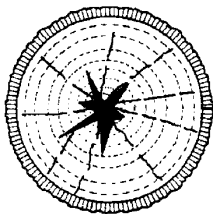
ANSWER



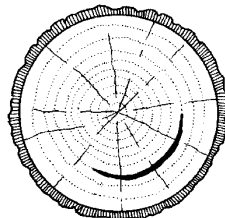
- (ii) For what purpose is this tool used?

ANSWER

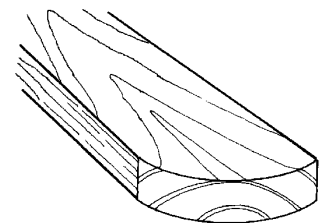
2. Name the timber defects shown in the following diagrams.



A



B

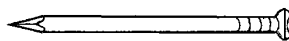


C

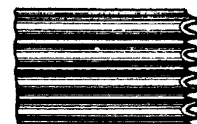
3. The diagrams below show three different types of nail. In the spaces provided, give the correct name for each of the nails.



A



B

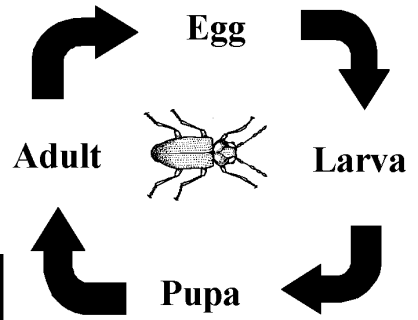


C

4. The lifecycle of a wood-boring beetle comprises four stages.

At what stage in the lifecycle is the most damage caused to wood?

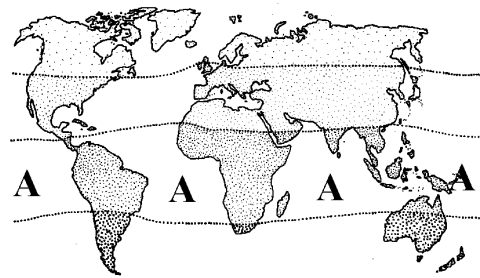
ANSWER



5. (i) Would the trees found in zone A on the map be:

- (a) Coniferous
- (b) Deciduous
- (c) A mixture of both?

ANSWER



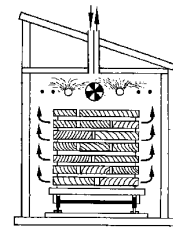
(ii) Describe **ONE** characteristic of the trees found in zone A that makes them particularly suited to the climate in that area.

ANSWER

6. The diagram shows a method of seasoning timber.

(i) What is the correct name for this method of seasoning?

ANSWER



(ii) What is the function of the steam in this method of seasoning?

ANSWER

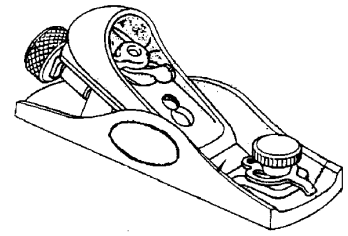
7. What do the letters **P.V.A.** stand for in relation to adhesives?

P

V

A

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

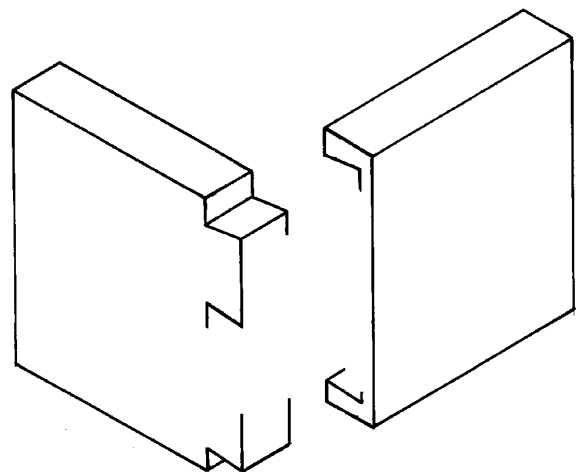


ANSWER

(ii) Where would you use this type of plane in preference to a smoothing plane?

ANSWER

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



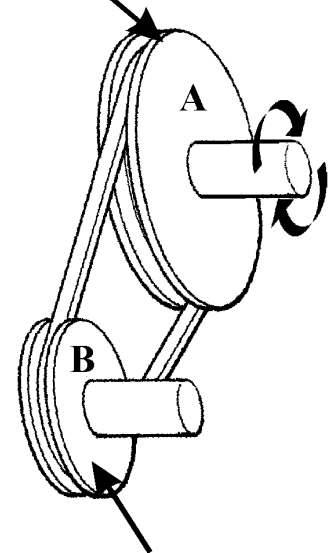
Complete the sketch of this joint.

10. The diagram shows a stepped cone pulley mechanism that would be found in the headstock of a lathe.

(i) If pulley-wheel **A** rotates in the direction shown in the diagram, indicate using an arrow, the direction of rotation of pulley-wheel **B**.

(ii) If pulley-wheel **A** rotates at 240 revolutions per minute, what is the rotational speed of pulley-wheel **B**?

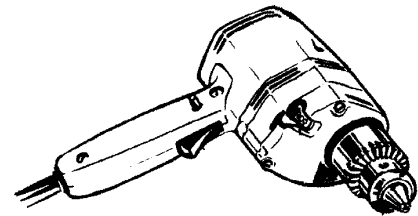
30cm Diameter



12cm Diameter

ANSWER

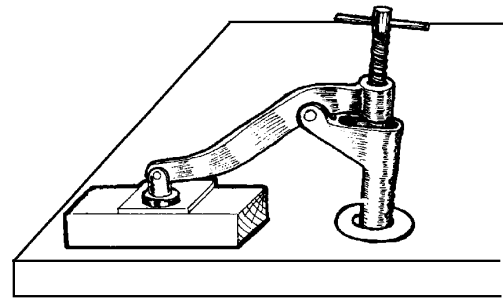
11. State **TWO** appropriate safety precautions that should be observed when using an electric drill as shown.



PRECAUTION 1

PRECAUTION 2

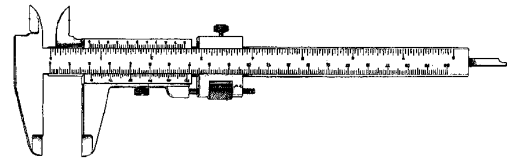
12. The diagram shows a piece of wood secured on a bench using a holdfast. What is the correct name for the force being applied to the wood?



FORCE

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

NAME



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

USE

14. (i) What is the main difference between ferrous and non-ferrous metals?

ANSWER

(ii) For each of the the following metals, state whether it is **FERROUS** or **NON-FERROUS**.

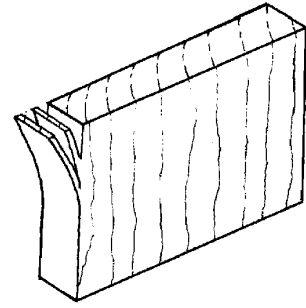
Copper

Steel

Aluminium

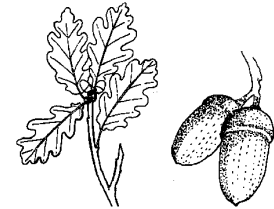
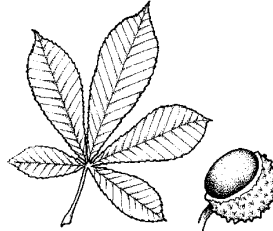
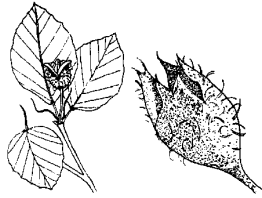
15. The diagram shows the end of a wide plank of timber that has been planed.

- (i) Using an arrow, indicate on the diagram the direction of planing.
- (ii) Describe **ONE** method that could be used to prevent the corner splitting.



ANSWER

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



A

B

C

17. (i) Name the two main categories that **PLASTICS** can be divided into.

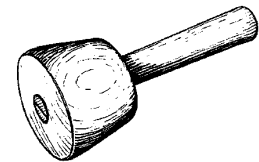
CATEGORY 1

CATEGORY 2

(ii) Materials from which category can be heated and moulded only once?

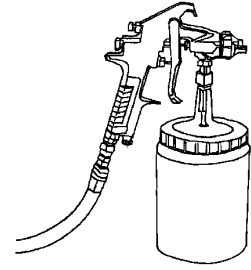
ANSWER

18. A carver's mallet is shown in the diagram. Why is the head of the mallet shaped as shown?



ANSWER

19. The diagram shows a spraygun that is used to apply cellulose based finishes.
State **TWO** safety precautions that should be observed when applying such finishes.

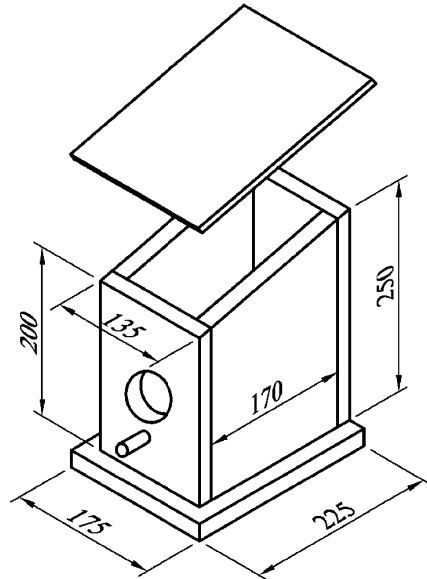


PRECAUTION 1

PRECAUTION 2

20. The diagram shows a small wooden bird house.

Complete the following cutting list for the bird house.



DESCRIPTION	NUMBER	L	W	T
Base	1	225		15
Sides	2		170	15
Front	1	200		15
Back	1			15

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

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Junior Certificate Examination 2005

Materials Technology Wood

Higher Level

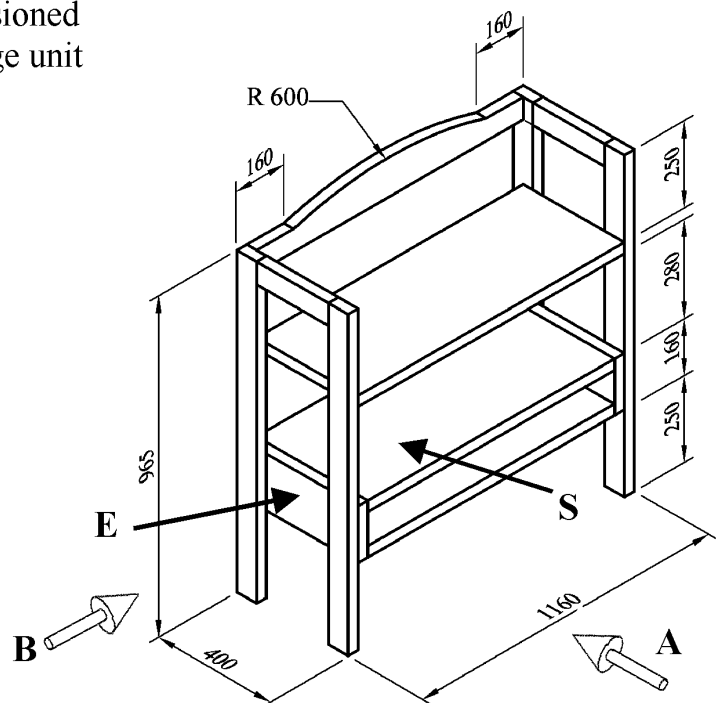
Section B (60 Marks)

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 .

1. The diagram shows a dimensioned isometric drawing of a storage unit manufactured from beech.

All frame material is
70mm x 25mm



- (i) To a scale of 1:5, draw a **front elevation** of the 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 joining the shelf **S** to the end piece **E**.

2. (i) Two of the steps in a process of design are **Investigation/Research** and **Design Ideas/Solution**. Explain these two steps.

(ii) The diagram shows a collection of small gardening tools. Using notes and *neat freehand sketches*, design a suitable portable unit to store such items.

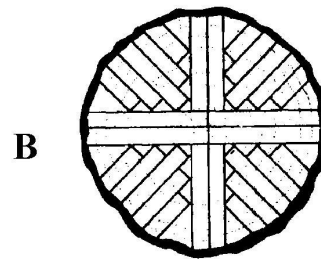
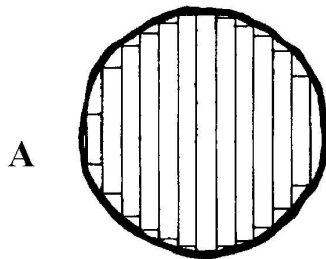


Indicate in particular, how you have considered safety and ease of access to the tools in your design.

(iii) Suggest a suitable material for the manufacture of your proposed unit, and state **TWO** reasons for your choice.

(iv) Suggest a suitable applied finish for your proposed unit, and state **TWO** reasons for your choice.

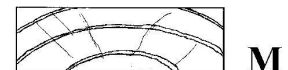
3. Shown in the diagrams are two methods for timber conversion.



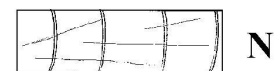
(i) Name the two methods of conversion shown in the diagrams.

(ii) State **TWO** advantages and **TWO** disadvantages of each method of conversion.

(iii) The diagrams show the ends of two boards, **M** and **N**.



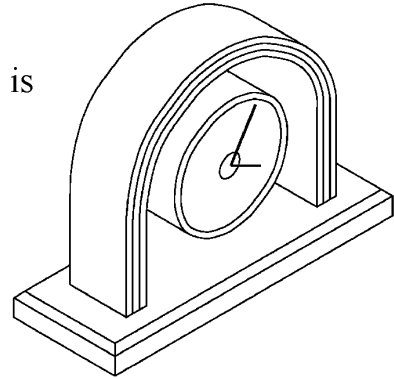
Which of the boards is most likely to cup? Give a reason for your answer. Describe, using a neat freehand sketch, the direction of cupping.



(iv) State **TWO** reasons why tropical rain forests should be conserved and suggest **TWO** approaches that would assist in the conservation of rain forests.

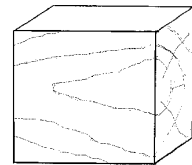
4. Answer either A or B.

- (A) The diagram shows a mantle clock consisting of a turned clockface made from yew. The clockface is suspended from a laminated cherry frame.



- (i) With the aid of *neat freehand sketches*, describe *in detail* how the laminated frame should be manufactured.
- (ii) Suggest a suitable adhesive to be used when forming the laminated frame, and give a reason for your choice.

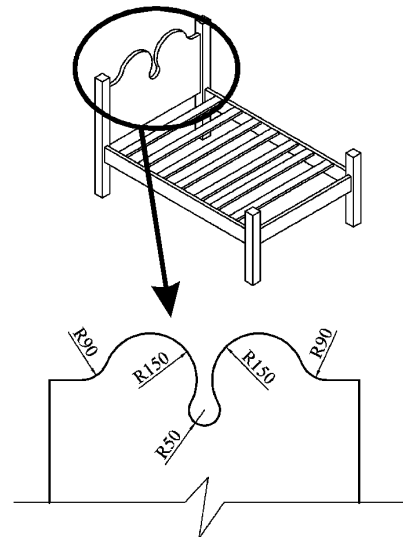
- (iii) The clockface is to be turned on a lathe from a piece of yew similar to that shown in the diagram. Describe, with the aid of notes and *neat freehand sketches*, how to **PREPARE** the piece and **MOUNT** it on a lathe for turning.



- (iv) State **THREE** appropriate safety precautions that should be observed when using a lathe.

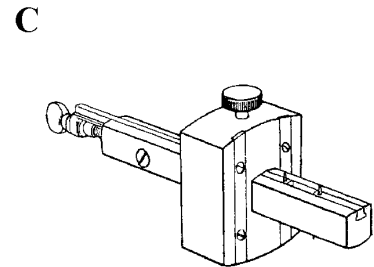
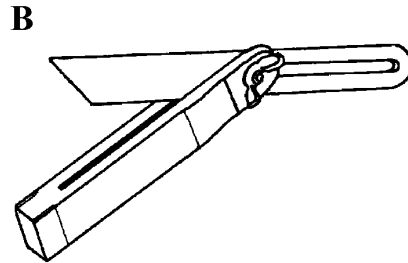
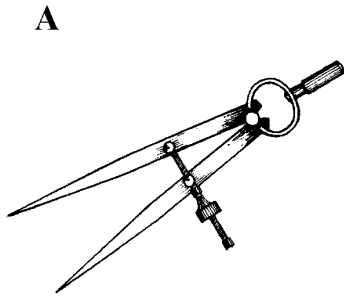
OR

- (B) The diagram shows a child's bed manufactured from ash.

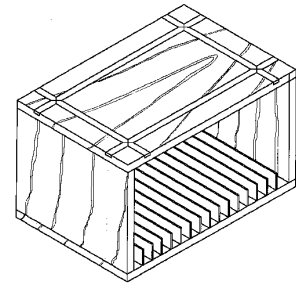


- (i) With the aid of notes and *neat freehand sketches*, describe *in detail* how you would **MARK OUT** and **SHAPE** the decorative detail on the headboard of the bed.
- (ii) Select a suitable applied finish for the bed. Give **TWO** reasons in support of your choice of finish.
- (iii) With the aid of notes and *neat freehand sketches*, describe *in detail* how you would **PREPARE** the surface for the application of your chosen finish.
- (iv) With the aid of notes and *neat freehand sketches*, describe *in detail* how you would **APPLY** your chosen finish to the surfaces of the bed.

5. (i) State the correct names for the marking out tools labelled **A**, **B** and **C**.



- (ii) The diagram shows a small storage unit for DVDs made from cherry. The top is inlaid with a decorative strip of boxwood. With the aid of notes and *neat freehand sketches*, describe *in detail* the steps you would follow in order to insert the boxwood strip.



- (iii) With the aid of notes and *neat freehand sketches*, describe *in detail* the steps you would follow to mark out the stopped dovetail housing joint shown in the diagram.

