



Junior Certificate Examination 2007

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(a) or (b)	
5	
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.

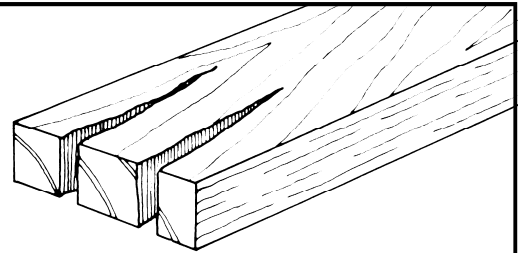
Belt Sander ☐ Orbital Sander ☐ Electric Planer ☐



- (ii) State **ONE** reason for using this tool.

REASON

2. Splitting may occur on the end grain of a piece of timber during seasoning. Suggest **ONE** method of preventing this from happening.



ANSWER

3. (i) State **ONE** advantage of using screws instead of nails.

ADVANTAGE

- (ii) Name the screw head shown in the diagram.

SCREWHEAD

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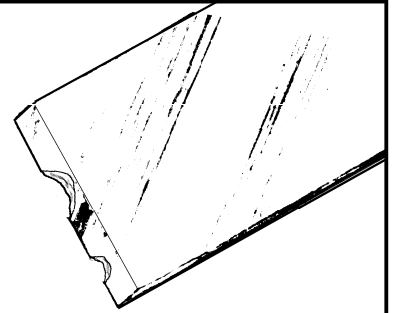


4. The blade of a chisel has become damaged and needs to be sharpened. Using the numbers 1, 2 and 3, place the following steps in the correct order.

HONING

BURR REMOVAL

GRINDING

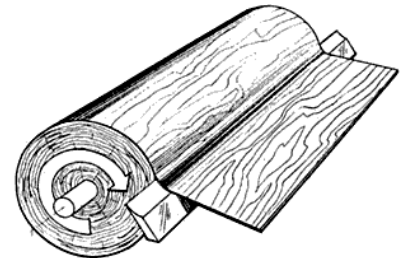


5. (i) The diagram shows a log being peeled to produce a continuous thin layer of wood. What is the layer called?

NAME

- (ii) What can this layer be used for?

ANSWER

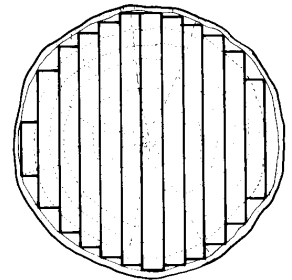


6. (i) The diagram shows a method of converting logs. Name this method of conversion.

NAME

- (ii) State **ONE** disadvantage of this method of conversion.

DISADVANTAGE



7. The diagrams show the leaves of three common Irish trees. Name the trees in the spaces provided.



8. In the manufacture of exterior grade plywood what do the letters W.B.P. stand for?

W	B	P
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9. State **TWO** advantages of using CAD.

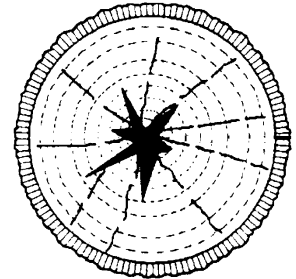
ADVANTAGE 1

ADVANTAGE 2

10. The diagram shows a common defect in timber.

- (i) Give the correct name for this defect.

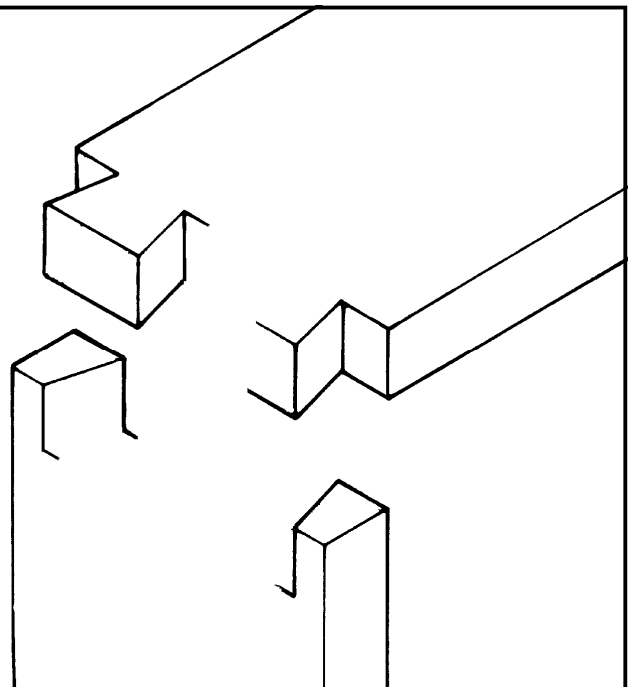
NAME



- (ii) What is the possible cause of this defect?

CAUSE

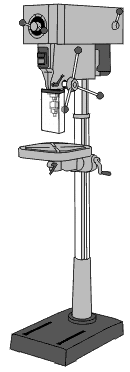
11. The diagram shows an incomplete exploded isometric sketch of a box dovetail joint. Complete the sketch of the joint



12. State **TWO** specific safety precautions that should be observed when using a pillar drill.

SAFETY 1

SAFETY 2



13. The diagram shows a gate. What is the correct name for the force acting in member A?

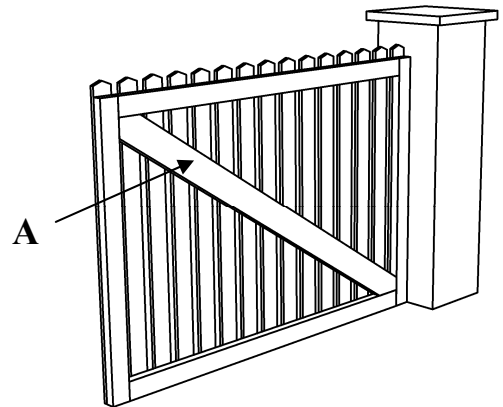
TORSION

☐

COMPRESSION

☐

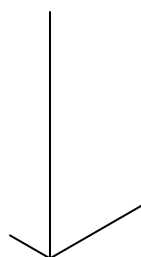
TENSION

☐

14. Identify, using a tick, whether the metals listed below are pure metals or alloys.

Metal	Pure Metal	Alloy
Steel		
Copper		
Aluminium		
Brass		
Bronze		

15. Make a 3D sketch of a try-square on the given isometric axes.



16. Identify, using a tick, which of the following plastics are Thermoplastic or Thermosetting.

Plastic	Thermoplastic	Thermosetting
Polyvinyl Chloride		
Acrylic		
Polyester Resin		
Urea-formaldehyde		
Polystyrene		

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

NAME

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

USE



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

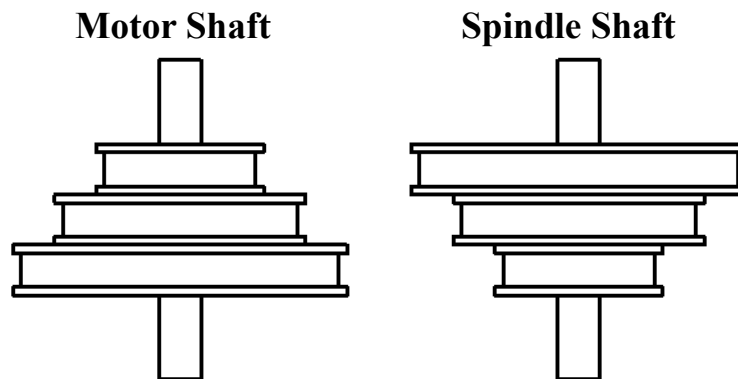
NAME

- (ii) Suggest an appropriate method of preventing this hinge from rusting when used externally.

ANSWER

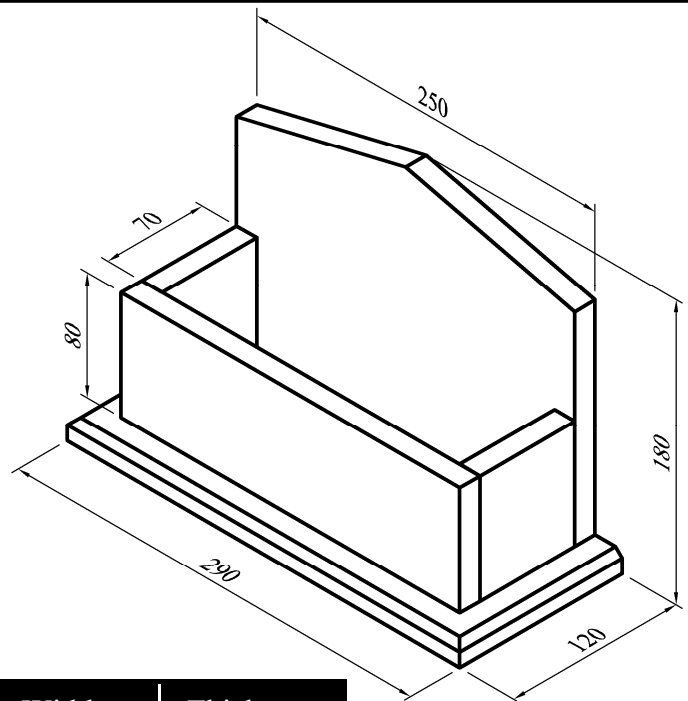


19. Shown in the diagram is the pulley mechanism of a lathe. Indicate, on the diagram, the position of the belt to achieve maximum speed for the lathe.



20. The diagram shows a letter rack.

Complete the following cutting list for the letter rack.
(All material is 15mm thick)



Description	Quantity	Length	Width	Thickness
Base	1		120	15
Back	1	250		15
Front	1		80	
Sides		70	80	15

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

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Junior Certificate Examination 2007

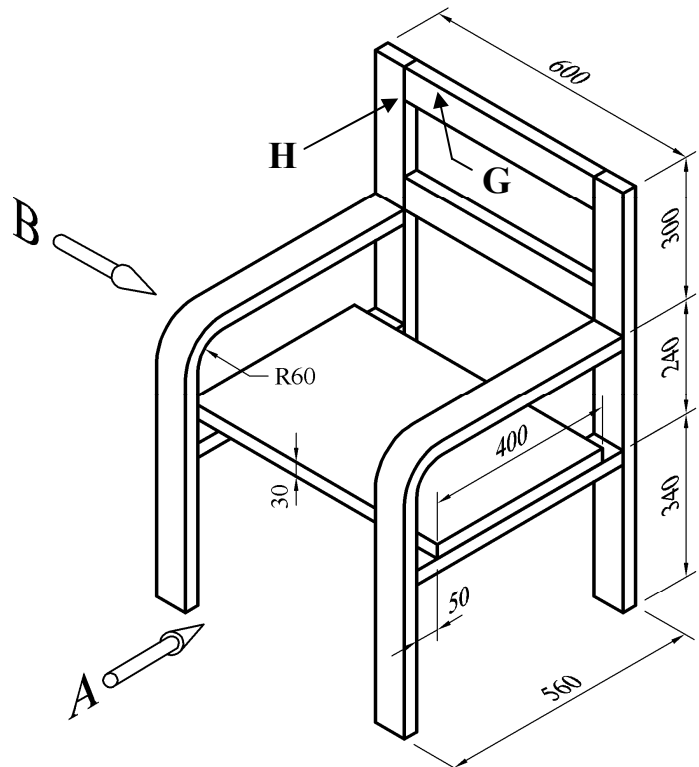
Materials Technology Wood
Higher Level
Section B (60 Marks)

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.
- (d) Question 1 from this section should 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 chair.

All frame material
is 70mm x 30mm



- (i) To a scale of 1:4, draw a **front elevation** of the chair 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 members **G** and **H**.

2. (i) Two stages in a typical design process are **investigation/research** and **evaluation**. Explain these two stages.

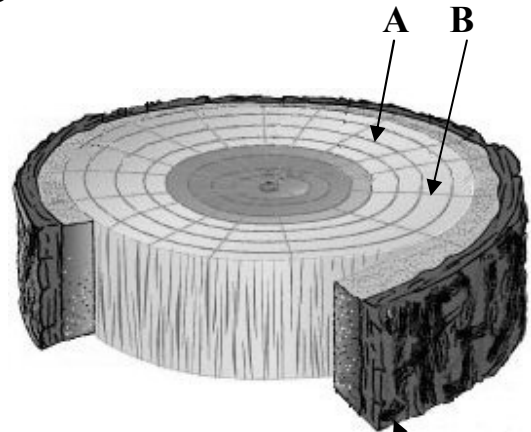
- (ii) The diagram shows a collection of DVDs and Video Cassettes. Using notes and **neat freehand sketches** to communicate your ideas, design a unit to store **five** of each of these items. The unit should incorporate a film theme.



- (iii) State **TWO** specific requirements that must be considered in your design.
- (iv) Suggest a suitable material for the manufacture of the unit and give **TWO** reasons for your choice.

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

- (i) Name the parts of the cross section labelled **A**, **B** and **C**.
- (ii) In the diagram, the heartwood and sapwood areas are clearly shown. State **TWO** differences between the areas.

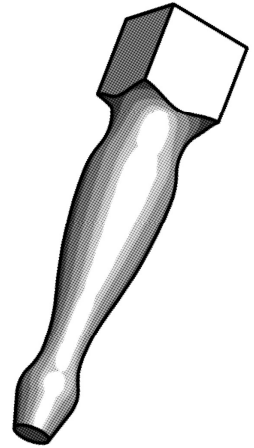


- (iii) Food generated through photosynthesis is transported through the tree trunk. Describe, using notes and **neat freehand sketches**, the process of photosynthesis.
- (iv) Give **TWO** reasons why rain forests should be conserved and give **TWO** examples of methods which will reduce the rate of global deforestation.

4. Answer either A or B

A. The diagram shows the leg of a stool which has been turned on a lathe.

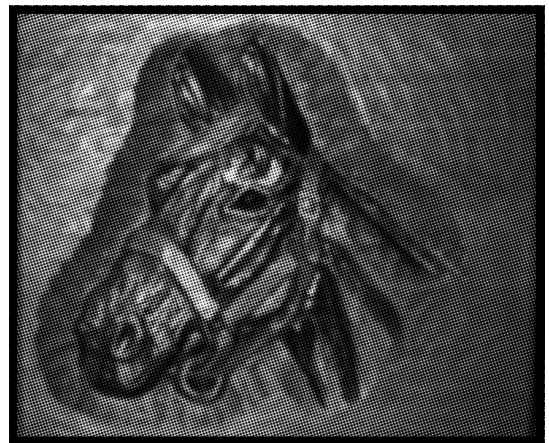
- (i) With the aid of notes and *neat freehand sketches* describe **ONE** method that could be used to make another leg identical to the one shown.
- (ii) Select **TWO** specific woods which are suitable for turning and give **TWO** reasons for your selection.
- (iii) With the aid of notes describe how a square piece of wood should be **(a) prepared** and **(b) mounted** for turning on a lathe.



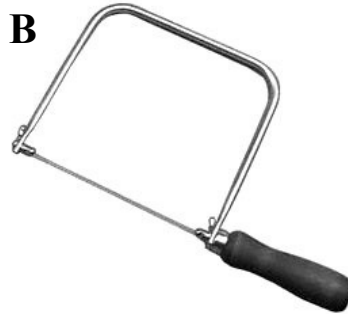
OR

B. The diagram shows a carved wooden panel.

- (i) With the aid of notes and sketches describe how you would transfer the design from a sheet of paper onto the wooden panel prior to carving.
- (ii) Name **THREE** methods of carving.
- (iii) State **TWO** reasons why it is necessary to apply a finish to a wooden artefact.
- (iv) State **TWO** specific safety precautions that should be observed when using applied finishes.



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



- (ii) Using notes and *neat freehand sketches* outline the steps involved in replacing a broken blade in the saw labelled **B** above.
- (iii) With the aid of notes and *neat freehand sketches* explain the terms **Saw Kerf** and **Saw Set**.

- (iv) The diagram shows a cut tenon. State the correct name for part **D** of the tenon and describe its function.

