Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2010

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

Monday, 21 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.*

Centre Number

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

Examination Number:

SECTION A - 40 MARKS

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

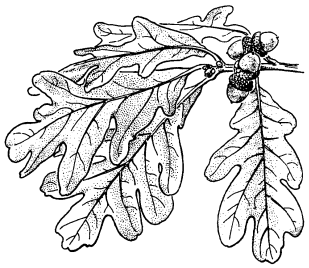
1. (i) Name the woodworking tool shown in the diagram.

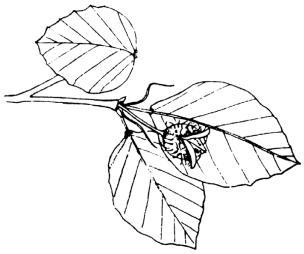
NAME

(ii) Give one specific use for this tool.

USE

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





3. The diagram shows a coping saw. Using a tick, identify the force which is acting on the blade.

COMPRESSION ☐

TENSION ☐

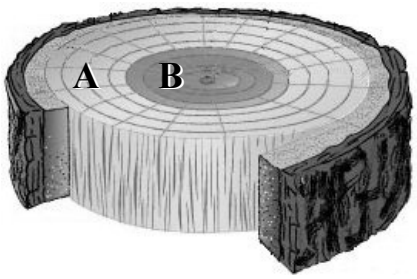
TORSION ☐

4. Name **THREE** of the raw materials necessary for photosynthesis to take place in a leaf.

1 **2** **3**

5. The diagram shows a cross-section of a tree.

Name the areas labelled **A** and **B**.



Area **A** _____

Area **B** _____

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

NAME _____

(ii) State an appropriate use for this tool.

USE _____

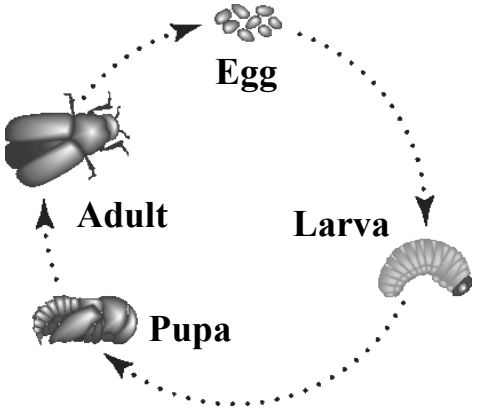
7. Using a tick (✓), indicate whether the following trees are Hardwoods or Softwoods.

Trees	Hardwood	Softwood
Ash		
Sitka Spruce		
Douglas Fir		
Birch		
Holly		

8. The diagrams show three handheld power tools. State a specific safety precaution that should be observed when using each power tool.

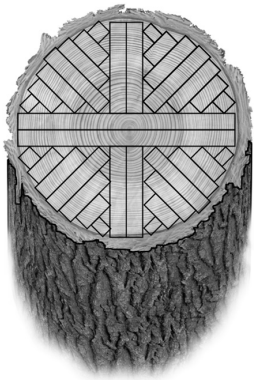
9. The diagram shows four stages in the lifecycle of a wood-boring beetle.

At what stage is most damage caused to the wood?



STAGE _____

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



NAME _____

(ii) Name the grain pattern produced by sawing oak in this manner.

PATTERN _____

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

ANSWER _____

(ii) For what purpose is this tool used?

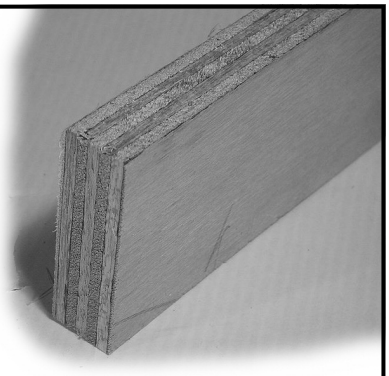
ANSWER _____

12. Give **TWO** ways in which a computer can be used when working on your Junior Certificate MTW project.

USE 1 _____

USE 2 _____

13. (i) Name the manufactured board shown on the right.



NAME _____

(ii) Give **TWO** advantages of using this board instead of solid wood.

ADVANTAGE 1 _____

ADVANTAGE 2 _____

14. Identify, using a tick (✓), which of the following saws are more suitable for curved or straight cuts.

Saws	Curved	Straight
Dovetail saw		
Band saw		
Scroll saw		
Circular saw		
Rip saw		

15. Brass is an alloy of two metals.
Name the **TWO** metals.

METAL 1 _____

METAL 2 _____

16. Dry rot is the most common form of decay in wood.

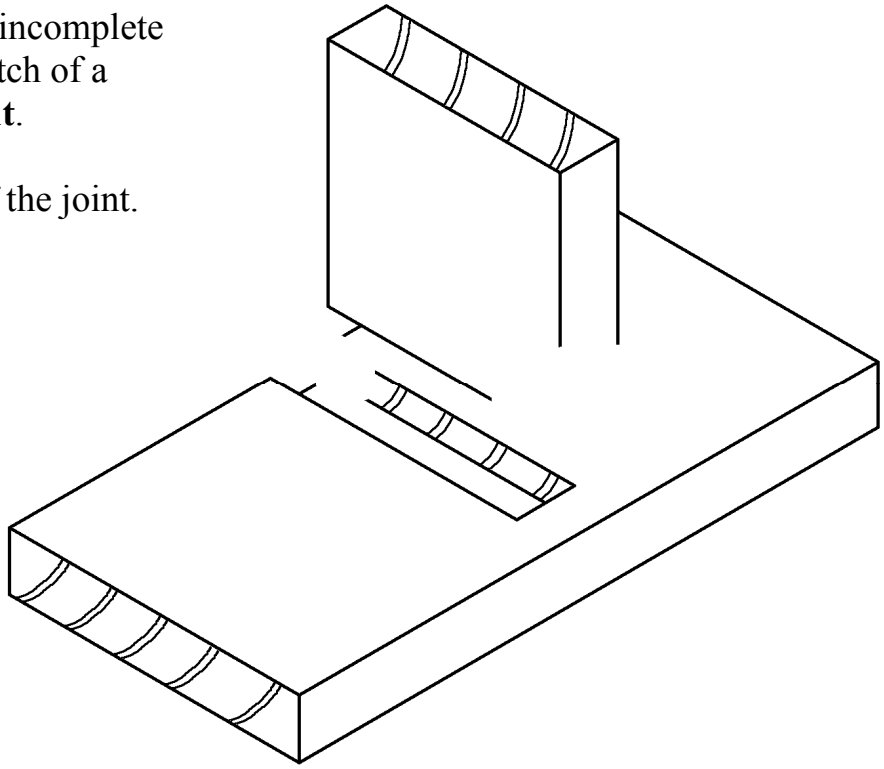
State **TWO** conditions necessary for its occurrence.

CONDITION 1 _____

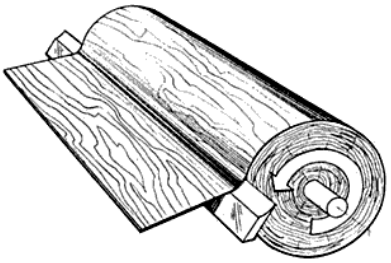
CONDITION 2 _____

17. The diagram shows an incomplete exploded isometric sketch of a **Stopped Housing Joint**.

Complete the sketch of the joint.



18. The diagram shows a log being peeled to produce a continuous thin layer of wood which is often used in manufactured boards.



(i) What is the layer called?

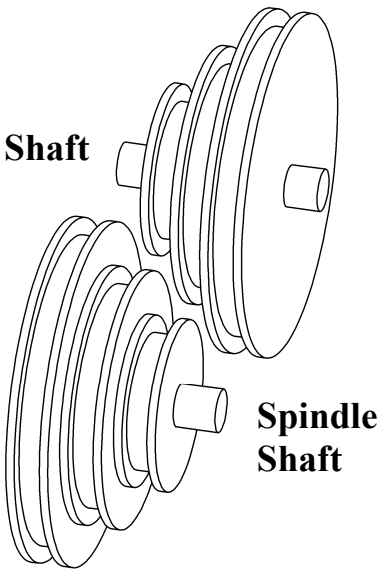
NAME _____

(ii) What is the name of this method of peeling?

METHOD _____

19. The diagram shows a pulley mechanism which is used to change the speed of a pillar drill.

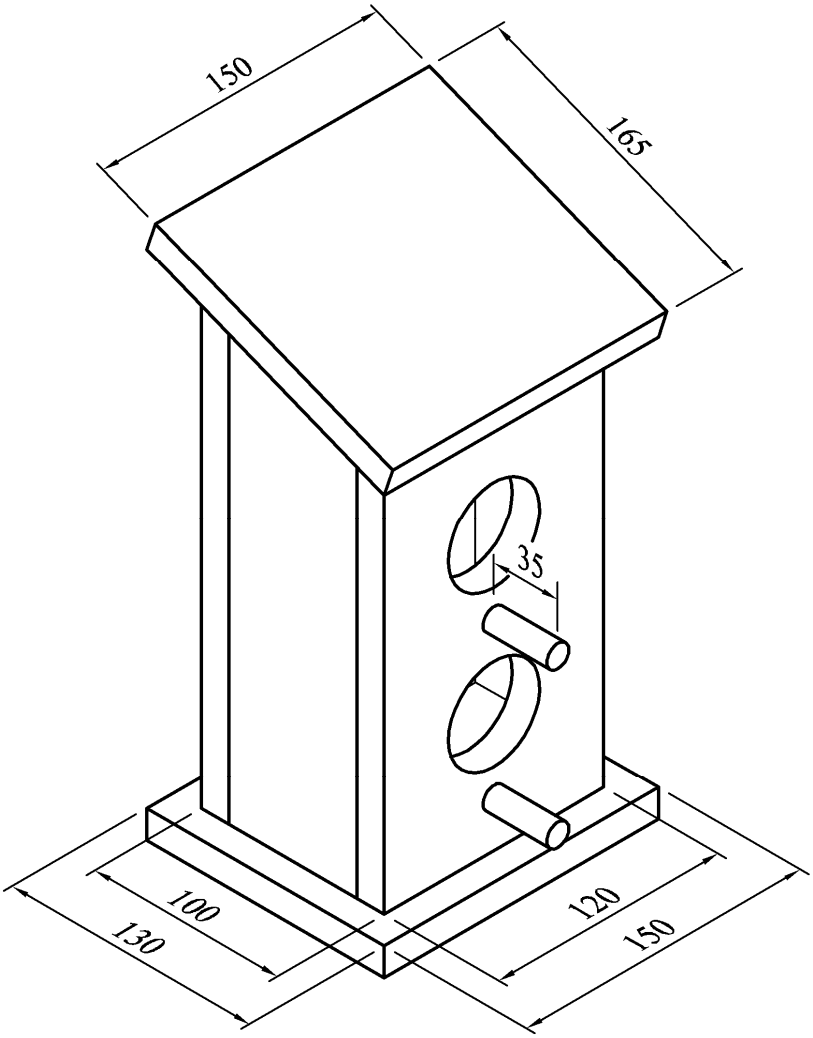
On the diagram indicate the position of the belt which will achieve minimum speed.



20. The diagram shows a bird house made from wood.

Complete the cutting list below.

Note: All material is 15mm thick.



Description	Quantity	Length	Width	Thickness
Base	1	150		15
Front		210	120	15
Back	1	250	250	15
Sides	2	240		15
Roof	1	165	150	
Dowel	2		Ø10	

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, 2010

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

Monday, 21 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.*

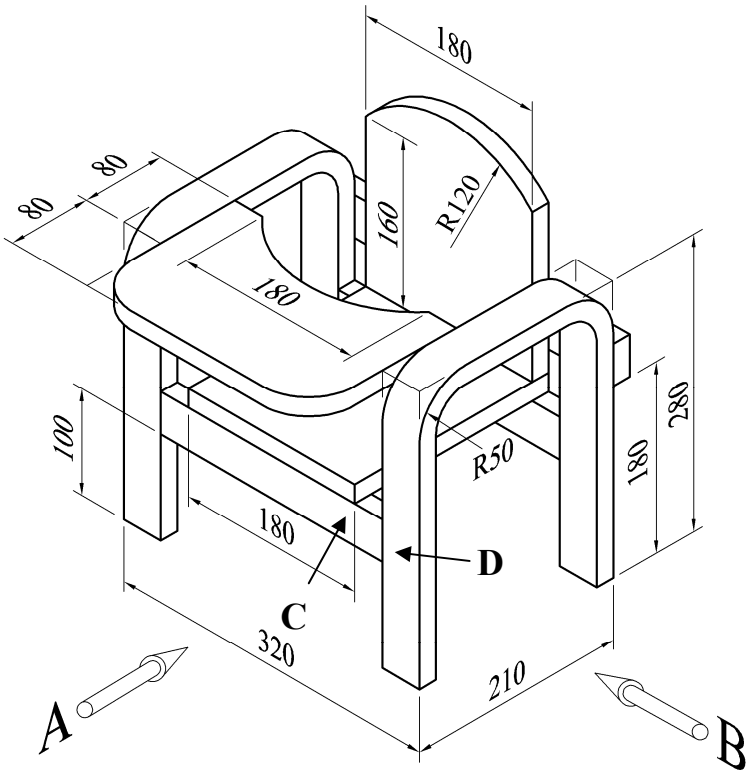
(d) *Write your examination number on the answer book and on all other pages used.*

(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 model of a wooden chair for a child.

Frame Material: 40mm x 18mm

Seat, Back and Table thickness: 18mm



(i) To a scale of 1:2, 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 jointing the members **C** and **D**.

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

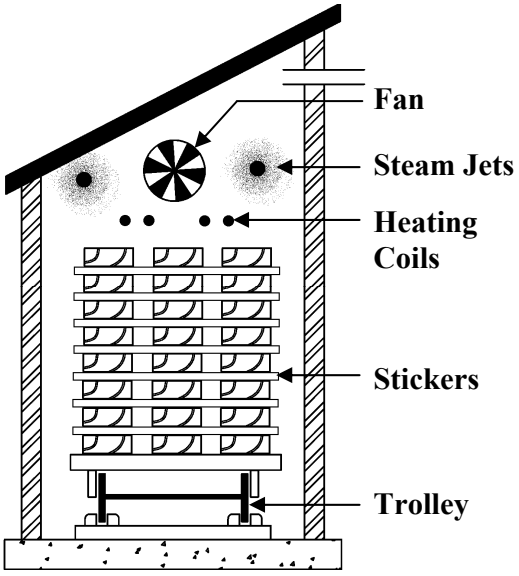
(ii) The diagram shows a collection of items and equipment used by a student when studying or doing homework.

Using notes and ***neat freehand sketches*** to communicate your ideas, design a suitable desktop unit that would store these items and that would also hold a text book open at a suitable reading angle.

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

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

3. The diagram on the right shows one method of seasoning timber to reduce its moisture content.



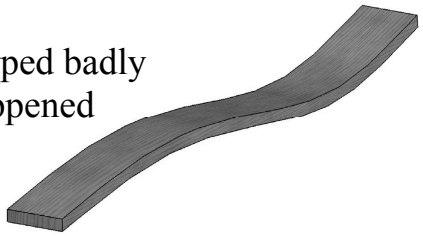
(i) What is the correct name for this method of seasoning?

(ii) Explain what happens during the seasoning process, making particular reference to the function of the parts labelled in the diagram.

(iii) Name **ONE** other method of seasoning timber.

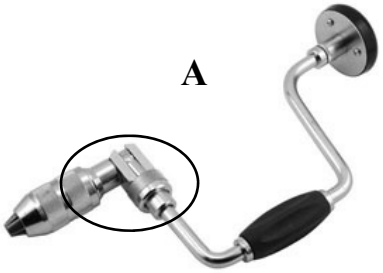
State **TWO** advantages and **TWO** disadvantages of this second method of seasoning.

(iv) The diagram on the right shows a board which warped badly during seasoning. Explain why this might have happened and, using notes and a ***neat freehand sketch***, show how the warping might have been prevented.

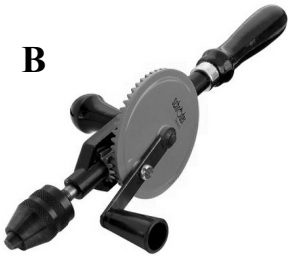


4. (i) State the correct name for the wood boring tools labelled **A**, **B** and **C**.

A



B



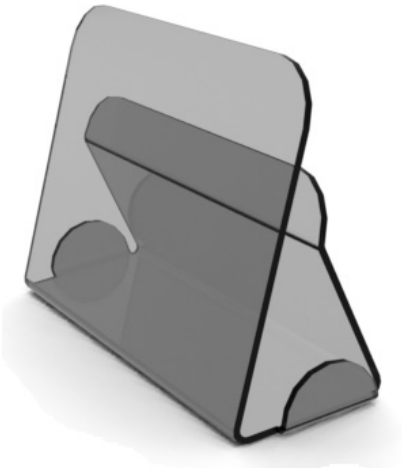
C

(ii) The diagram below shows a part of tool **A** enlarged. Name the part and describe how it functions.

(iii) The bit shown on the right is used with tool **A** to bore holes. Using notes and ***neat freehand sketches***, describe the stages involved in boring such a hole **through** a piece of wood using this tool.

5. Answer 5A or 5B

5A. The diagram shows a cook book stand which is made from acrylic.



(i) Using a ***neat freehand sketch***, draw the development that would be marked out on the acrylic sheet in order to manufacture this stand.

(ii) With the aid of ***neat freehand sketches*** describe, in detail, the steps you would follow to **CUT OUT** and **FORM** the holder.

(iii) It is proposed that the stand would be fixed to a hardwood base. With the aid of ***neat freehand sketches*** suggest a suitable design for the wooden base.

(iv) The stand is to fixed to the hardwood base using screws. With the aid of notes and ***neat freehand sketches***, describe how you would drill the appropriate holes in both the acrylic and the hardwood base for the insertion of the screws.

OR

5B. The diagrams show three carving methods.

A

B

C

(i) Name the **THREE** methods of carving shown in the diagrams.

(ii) With the aid of notes and ***neat freehand sketches*** describe how you would transfer the design from a sheet of paper onto the wooden panel in piece **B** prior to carving.

(iii) Select an appropriate clear finish for piece **C** and give **TWO** reasons in support of your choice.

(iv) Describe, in detail, how you would apply your chosen finish.