



Junior Certificate Examination, 2014

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

Monday, 16 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

5(a) or 5(b)

Total

SECTION A - 40 MARKS

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

1. (i) Identify the power tool shown.

NAME

- (ii) Describe **ONE** specific use for this power tool.

USE



2. The diagram shows a wooden garden bench.

Suggest **TWO** suitable applied finishes for the bench and give a reason for **each** chosen finish.

FINISH 1

REASON

FINISH 2

REASON



3. (i) Name the manufactured board shown in the diagram.

NAME

- (ii) State **ONE** advantage of this manufactured board.

ADVANTAGE



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

NAME

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

USE



5. The diagram shows a common defect in timber.

(i) Give the correct name for this defect.

NAME

(ii) Give **ONE** cause of this defect.

CAUSE



6. The diagram shows a CNC router.

State **TWO** advantages of controlling a router in this way.

1

2



7. The diagram shows the leaves and seeds of three common Irish trees.

In the spaces provided below, name **each** tree.







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

NAME

(ii) State an appropriate use for this tool.

USE



9. Name the screw driving systems shown at **A**, **B** and **C** below.

A		
B		
C		

10. (i) The diagram shows wooden boards held by four cramps. What is the correct name for this type of cramp?

NAME

(ii) Name the force applied to the boards by the cramps.

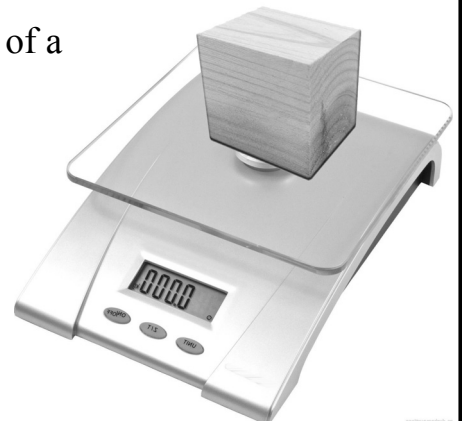
FORCE



11. Calculate the **original** moisture content (in % terms) of a piece of unseasoned wood, given its wet weight as 35.4 grams and its dry weight as 30 grams.

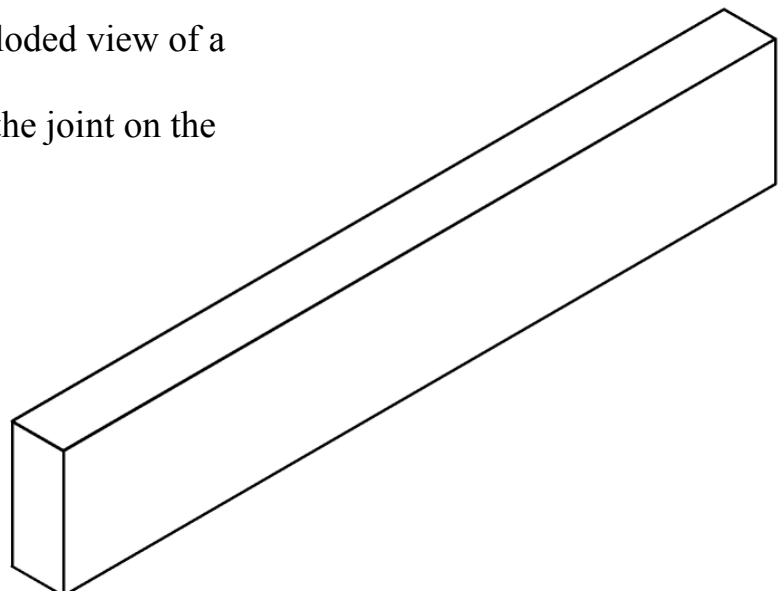
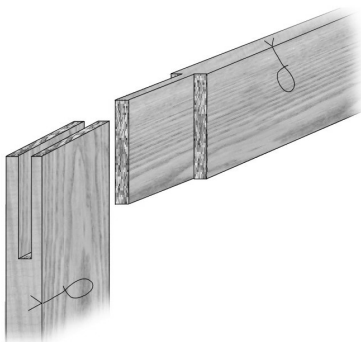
Calculation:

ANSWER %



12. The diagram shows an exploded view of a **Bridle Joint**.

Sketch the marking out of the joint on the diagram on the right.



13. Give **TWO** reasons why a surface finish is usually applied to a wooden artefact as shown.

REASON 1

REASON 2



14. (i) Name the woodworking tool shown.

NAME

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(ii) State **ONE** specific safety precaution that should be observed when using this tool.

PRECAUTION



15. The teeth on a saw are bent alternately to the left and right as shown in the diagram.

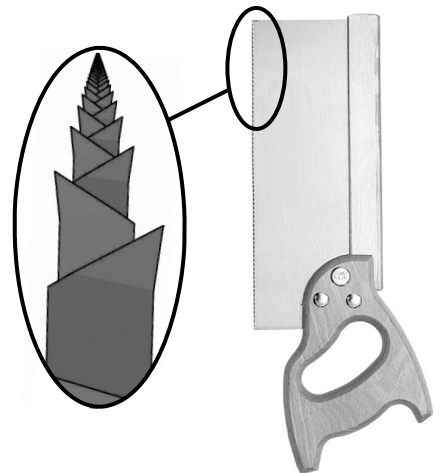
(i) Name this feature.

NAME

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(ii) What function does it serve?

FUNCTION



16. (i) The diagram shows a common type of hinge. Name this hinge.

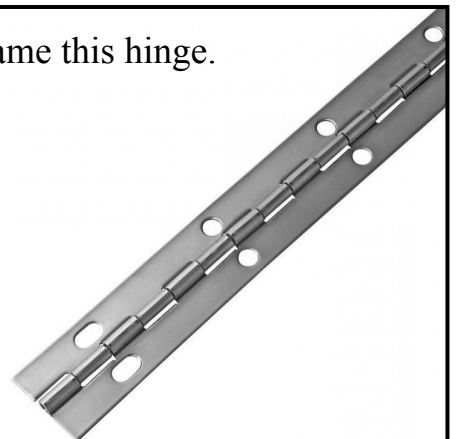
NAME

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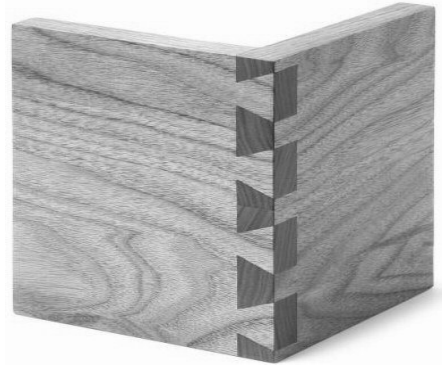
(ii) Why would this type of hinge be used in preference to a butt hinge?

REASON

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17. The diagram shows a dovetail joint. The slope of the dovetail is usually different for hardwoods and softwoods.



(i) What is the typical slope for each wood type?

SOFTWOOD **HARDWOOD**

(ii) Why is the slope different for each wood type?

REASON

18. A tall reading lamp with a flat wooden base is shown in the diagram. The lamp is unstable on the floor.

Suggest **TWO** design modifications that would solve this problem.



1

2

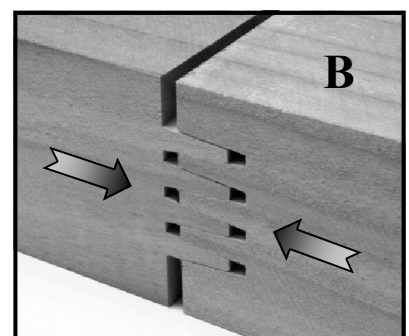
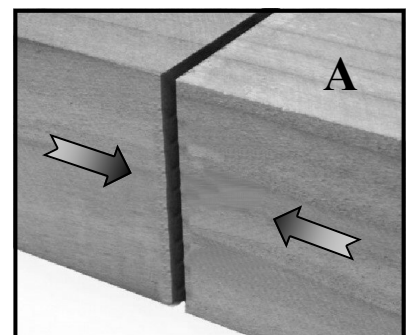
19. Wooden boards are often joined to form longer lengths. The boards at **A** are to be butt jointed and the boards at **B** are to be finger jointed.

(i) Indicate, using a tick (✓), which method will produce the stronger joint.

A ☐ **B** ☐

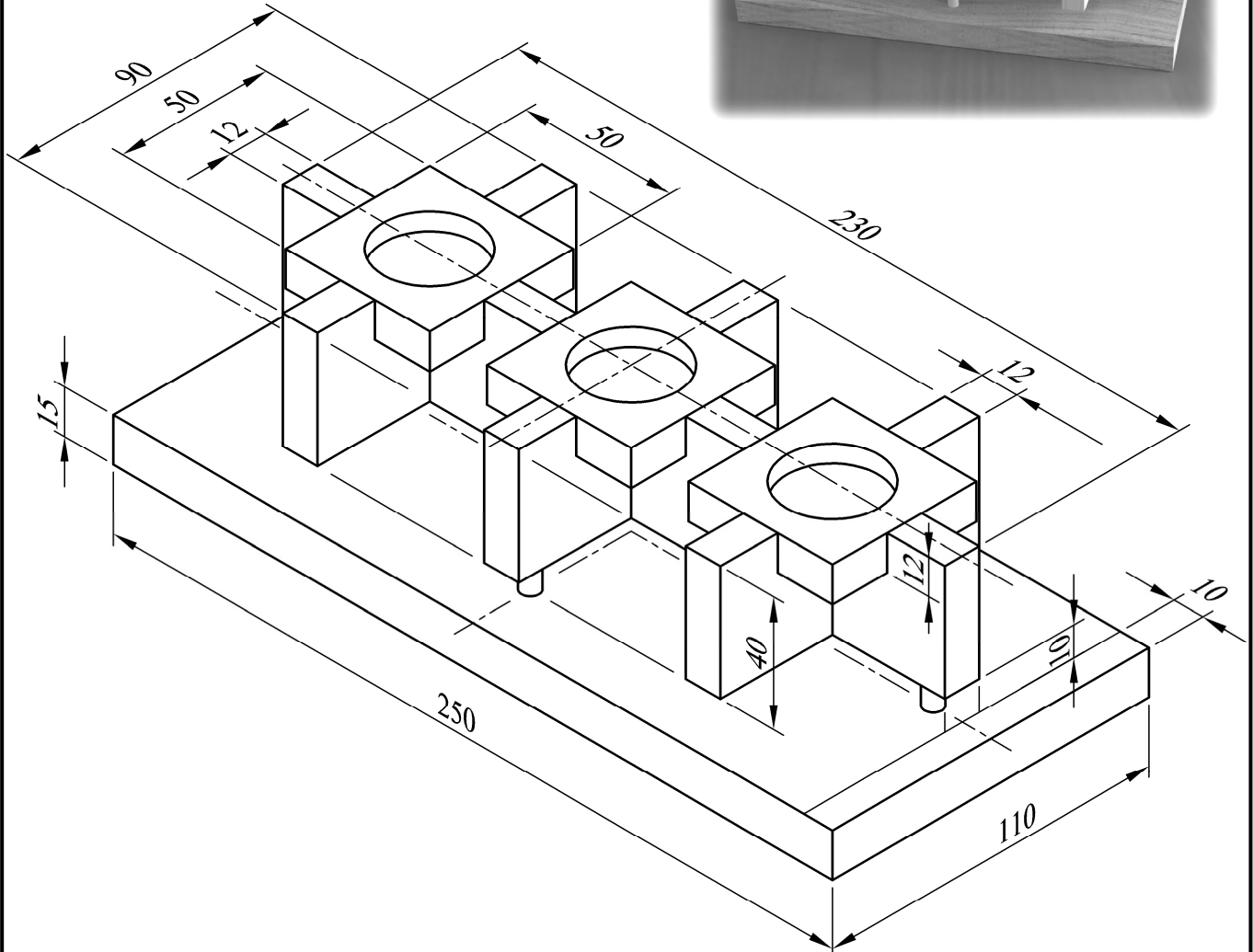
(ii) Give a reason for your answer.

REASON



20. The image on the right shows a design for a **Tea Light** holder.
A dimensioned drawing of the artefact is shown below.

Complete the given cutting list.



Description	Quantity	Length	Width	Thickness
Base	1		110	15
Long Rail	1	230	40	
Short Rail	3	90		12
Candle Base	3		50	12
Dowels		30	Ø6	

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

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Junior Certificate Examination, 2014

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

Monday, 16 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** questions.
- (c) Where sketches are required they may be done freehand or on the graph paper provided.
- (d) Write your examination number on the answerbook 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 answerbook supplied.

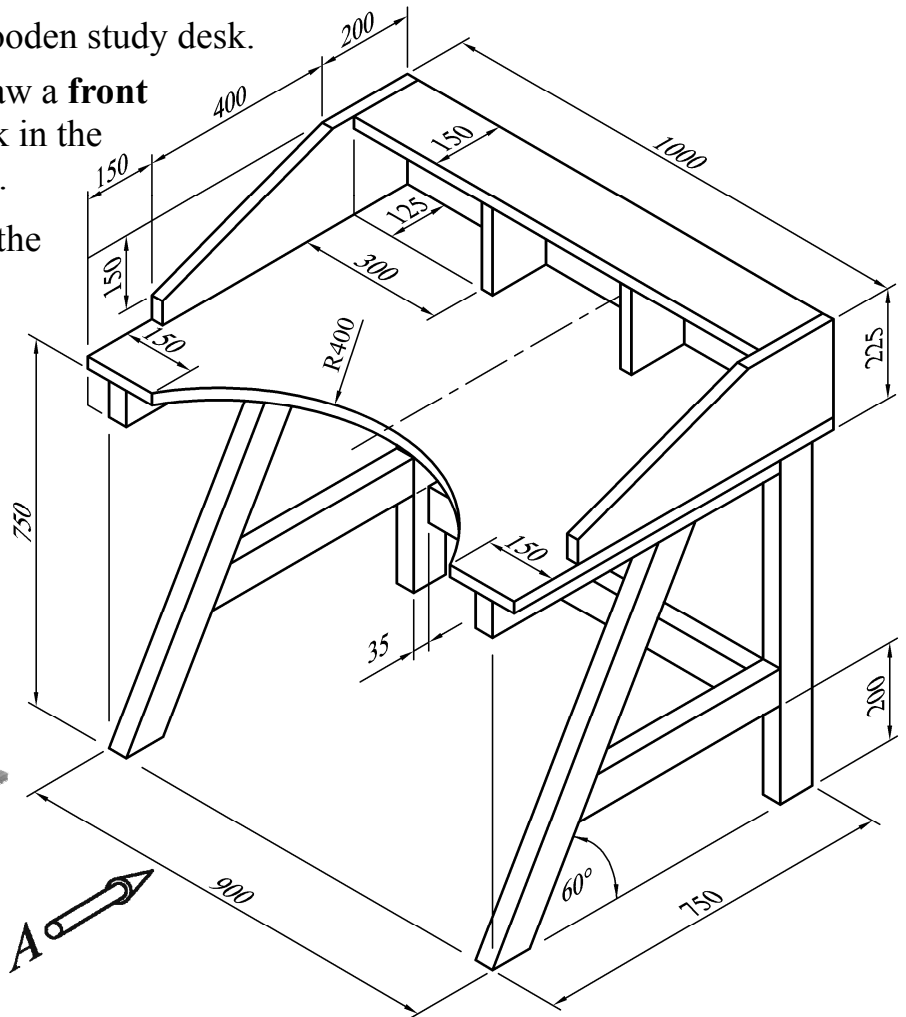
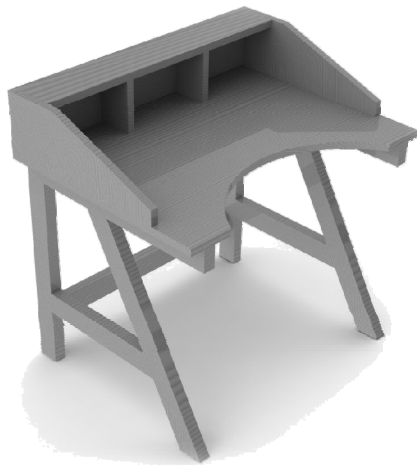
1. The diagrams show a wooden study desk.

(i) To a scale of 1:5, draw a **front elevation** of the desk in the direction of arrow A.

(ii) Project a **plan** from the elevation.

(iii) Project an **end view** from the elevation.

Note: Hidden detail is not required.



Supporting-Frame Material: 75mm × 40mm
All other material: 25mm thick

2. (i) Two stages in a typical design process are **Investigation/Research** and **Evaluation**. Briefly explain these **TWO** stages.

(ii) The diagram shows a collection of magazines and remote controls found in most homes.

Using notes and **neat freehand sketches** to communicate your ideas,

design a suitable wooden unit to store ten magazines and four remote controls. The finished unit must be portable and have a secondary function.

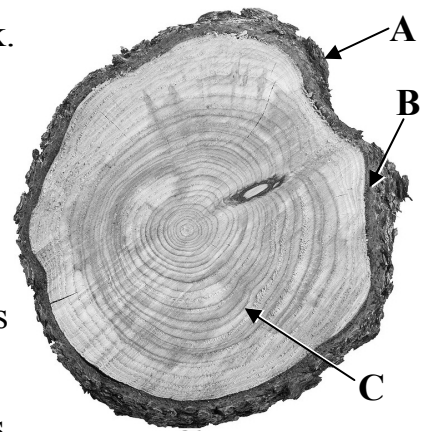
(iii) Describe using notes and **neat freehand sketches** how you incorporated the following requirements into your final design solution:

- The portability of the unit;
- The secondary function.

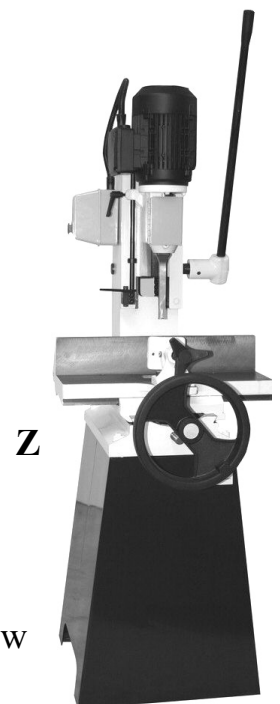


3. The diagram shows a cross section through a tree trunk.

- (i) Name the parts labelled **A**, **B** and **C** and describe the function of each.
- (ii) A tree is divided into three main parts: **roots**, **trunk** and **crown**. Using notes and *neat freehand sketches*, describe each part and state its function.
- (iii) Food for a tree is produced by a process known as **photosynthesis**. Using notes and *neat freehand sketches*, briefly describe the process of **photosynthesis**.
- (iv) The conservation of tropical rainforests is essential for environmental reasons.
 - (a) Give **TWO** reasons why we should conserve these rainforests.
 - (b) Suggest **TWO** ways in which we can continue to use attractive hardwoods in an environmentally friendly manner.



4. (i) Name the woodworking machines labelled **W**, **X**, **Y** and **Z** below and briefly describe what **each** machine is used for.

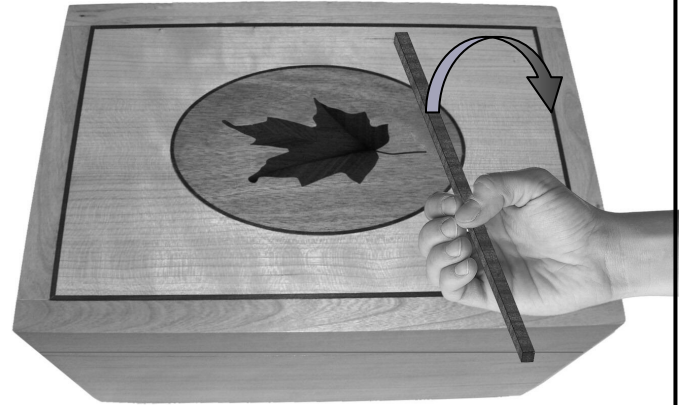


- (ii) With the aid of notes and *neat freehand sketches* describe how the machine labelled **Z** would be **set** and **used**.
- (iii) State **THREE** safety precautions that should be observed when using the machine labelled **Y** above and briefly outline the reason for **each** precaution.
- (iv) Give **TWO** reasons why an electrical **transformer**, as shown,



5. Answer 5A or 5B

5A. The diagram shows a jewellery box. There is a dark inlay strip around the top edge of the box. There is also a marquetry design of an ellipse and maple leaf veneered in the centre.

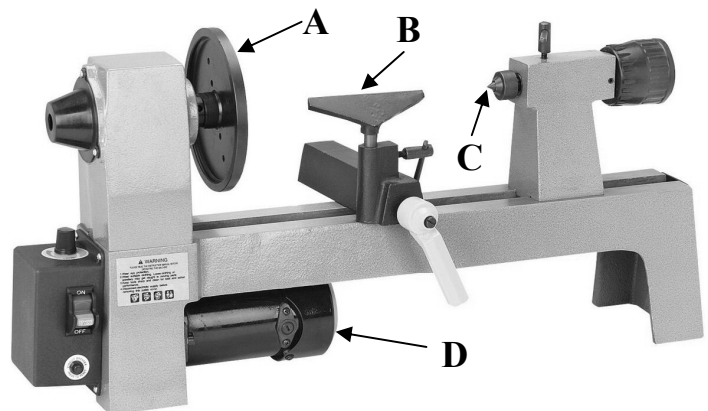


- (i) With the aid of notes and *neat freehand sketches*, describe how to cut the trench for the inlay strip parallel to the outer edges of the jewellery box.
- (ii) Describe how to transfer the ellipse and maple leaf design from a sheet of paper to the veneer.
- (iii) With the aid of notes and *neat freehand sketches*, describe how to cut the veneers to ensure that they fit accurately.
- (iv) Name **ONE** method of manufacturing veneers, and use a *neat freehand sketch* to describe the manufacturing process.

OR

5B. The diagram shows a bench-top woodworking lathe.

- (i) Name the parts of the lathe labelled **A**, **B**, **C** and **D** and briefly describe the function of each part.
- (ii) The diagram shows a block of wood which is to be turned as a bowl.



With the aid of notes and *neat freehand sketches*, describe how such a block should be **prepared** and **mounted** on a lathe for turning.

- (iii) Suggest a suitable speed (high, medium or low) for turning the bowl and give a reason for your answer.
- (iv) State **THREE** safety precautions that should be observed when using a lathe.