



*Junior Certificate Examination, 2015*

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

***Monday, 15 June***  
***Afternoon, 2:00 - 4:00***

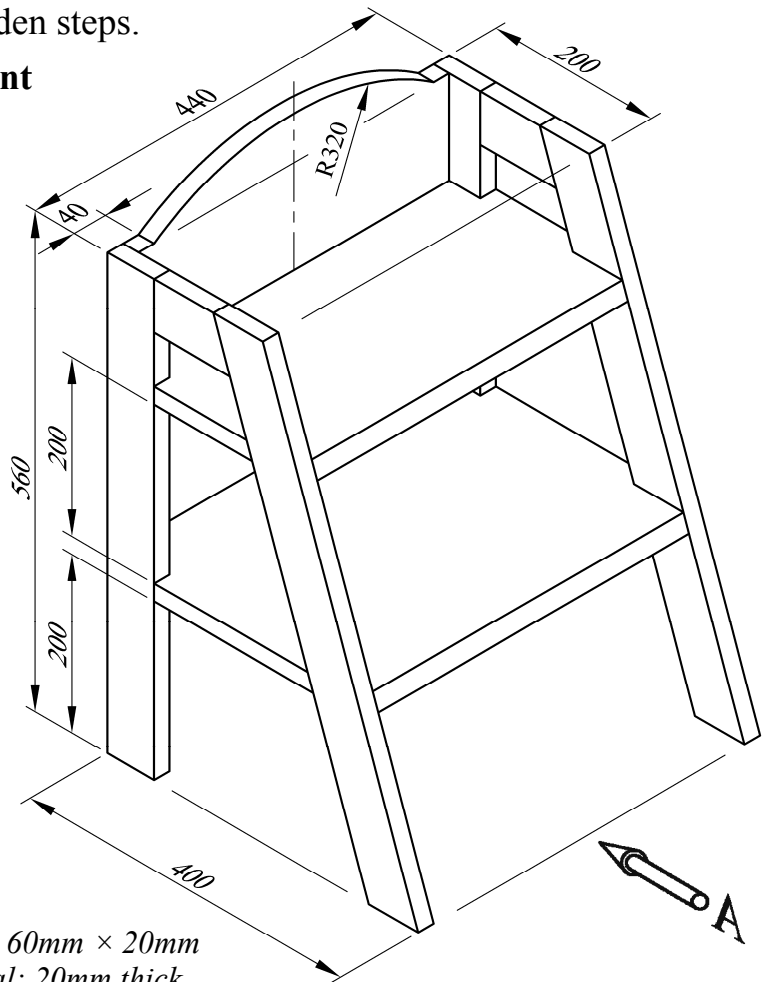
***Instructions***

- (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 diagram shows a set of wooden steps.

- (i) To a scale of 1:4, draw a **front elevation** of the steps in the direction of arrow A.
- (ii) Project a **plan** from the elevation.
- (iii) Project an **end view**.

*Note: Hidden detail is not required.*



Frame material: 60mm × 20mm  
All other material: 20mm thick

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

- (ii) The image shows a collection of DIY tools and equipment which can be found in many homes.

Using notes and *neat freehand sketches* to communicate your ideas, design a suitable portable wooden unit to store such items.

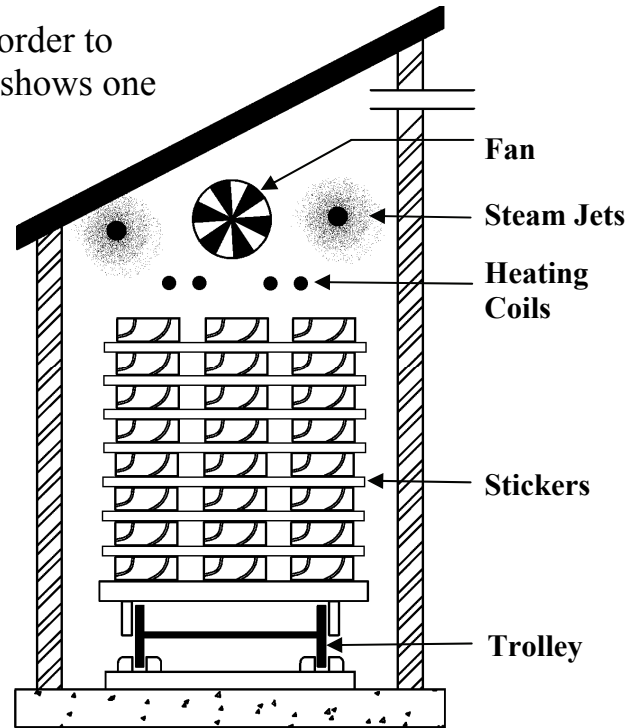


- (iii) State **TWO** specific design requirements that must be considered in the design of the proposed unit.
- (iv) Describe, using notes and *neat freehand sketches*, how you incorporated these **TWO** requirements into your final design solution.

3. Wood is generally seasoned before use in order to reduce its moisture content. The diagram shows one method of seasoning wood.

- (i) What is the correct name for this method of seasoning?
- (ii) State the **FUNCTION** of **each** of the following parts as shown in the diagram:

- **Fan**
- **Steam Jets**
- **Heating Coils**
- **Stickers**
- **Trolley**



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

State **TWO** advantages and **TWO** disadvantages of this second method of seasoning. Make specific reference to the moisture content achievable by **each** method.

- (iv) Using notes and *neat freehand sketches*, identify **THREE** seasoning related defects. Describe how **each** defect can be prevented.

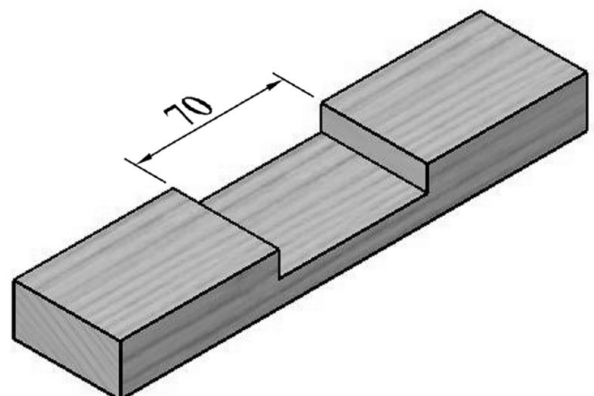
4. The image on the right shows four saw types.



- (i) Give the correct name for each of the saws, labelled **A**, **B**, **C**, and **D**, and state where each saw would be used.
- (ii) In most saws, the teeth face away from the handle, but in saw **C**, the teeth generally face towards the handle. Explain why this is so.

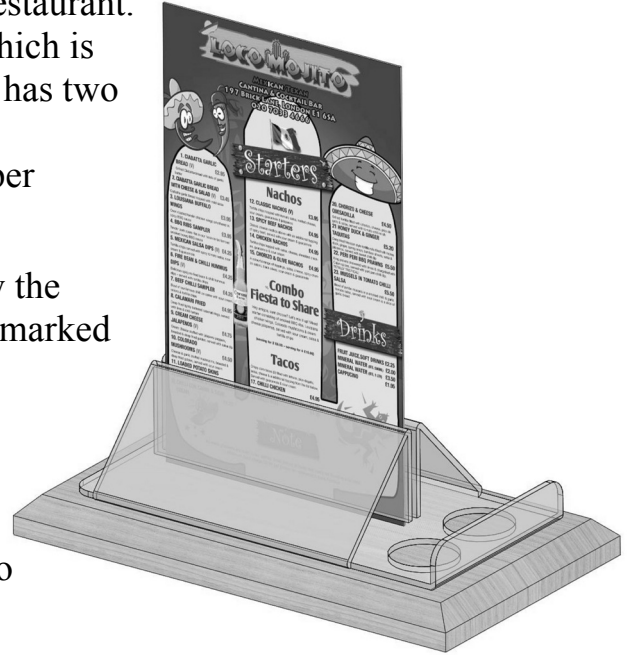
- (iii) Using notes and *neat freehand sketches*, describe the steps involved in replacing a broken blade in saw **C**.

- (iv) With the aid of notes and *neat freehand sketches*, describe *in detail*, the steps you would follow to mark out and remove the trench shown in the diagram.



5. Answer 5A or 5B

5A. The image shows a menu holder for a restaurant. The holder is made from bent acrylic which is attached to a wooden base. The acrylic has two circular holes at one end, as shown, to accommodate the bases of salt and pepper containers.

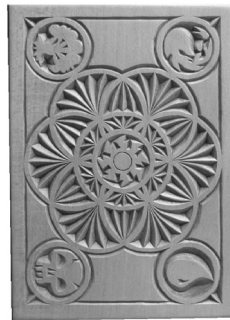


- (i) Using a **neat freehand sketch**, draw the surface development that would be marked out on the acrylic sheet in order to manufacture the holder.
- (ii) With the aid of notes and **neat freehand sketches**, describe in **detail**, the steps you would follow to **CUT OUT** and **FORM** the holder.
- (iii) With the aid of notes and **neat freehand sketches**, describe how you would form the two circular holes in the acrylic sheet.
- (iv) Describe, with the aid of notes and **neat freehand sketches**, the steps involved in fixing the acrylic holder to the wooden base, using four screws.

OR

5B. Wood is frequently shaped in a variety of ways, such as turning, carving and laminating.

- (i) The diagrams on the right show three different carving methods. Name **EACH** method.



A



B



C

- (ii) Carving usually requires the transfer of a design or pattern from a piece of paper onto a piece of wood. With the aid of notes and **neat freehand sketches**, describe how this could be done.
- (iii) In the student project on the right, the four legs are laminated. Give **TWO** reasons why lamination is used instead of cutting the curved legs from solid wood.
- (iv) With the aid of notes and **neat freehand sketches**, describe the steps involved in producing **ONE** of the laminated legs.

