

Pre-Junior Certificate Examination, 2014

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

Time: 2 hours

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 graph paper.*
- (d) Write your name, your school's name and your teacher's name 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 your answer book.*

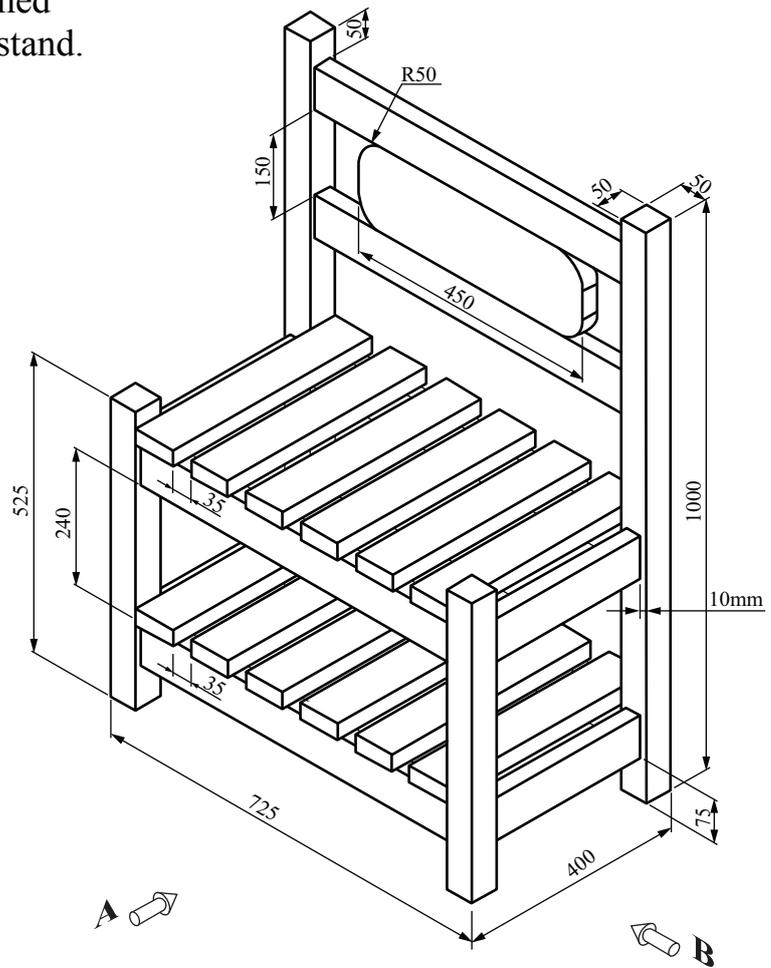
1. The diagram shows a dimensioned isometric drawing of a display stand.

All Material: 75mm x 30mm.
(unless otherwise stated)

- (i) To a scale of 1:5, draw a **front elevation** of the display stand 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 legs to the rails.



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

- (ii) The diagram shows a selection of children's toys.

Using notes and *neat freehand sketches* to communicate your ideas, design a visually attractive, freestanding unit that will store these items in a safe and easy to access manner.

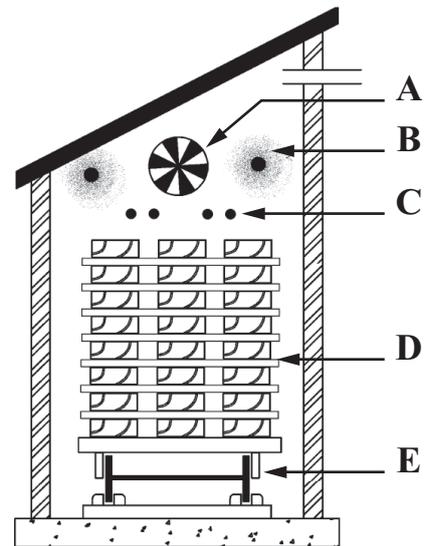


- (iii) Describe, using notes and *neat freehand sketches*, **ONE** wood joint that would be necessary in the manufacture of your proposed unit.

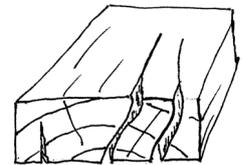
- (iv) Suggest a suitable wood for the manufacture of the unit and give **TWO** reasons for your choice.

3. The diagram shows the Kiln method of seasoning timber to reduce its moisture content.

- (i) Name the parts labelled **A**, **B**, **C**, **D** and **E**.
- (ii) Explain in detail the seasoning process and how it reduces the moisture content of the wood.
- (iii) Name **ONE** other method of seasoning timber. State **TWO** disadvantages of this method.



- (iv) The diagram shows the end of a board that has become damaged during seasoning. Name the defect and, using notes and *neat freehand sketches*, explain **ONE** method to prevent this defect.



4. (i) State the correct name for the tools labelled **A**, **B** and **C** below and give **ONE** appropriate use for each tool.



A

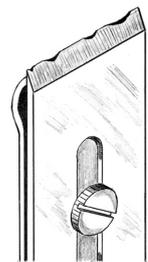


B

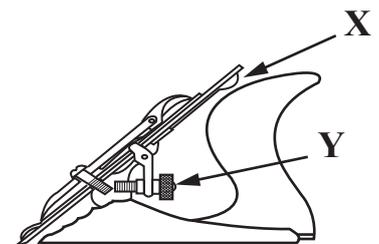


C

- (ii) The blade in tool **B** has become damaged during use. Describe, using notes and *neat freehand sketches*, the steps involved in returning a sharp cutting edge to the blade.



- (iii) The diagram on the right shows the cutting assembly of tool **B**. Name the parts labelled **X** and **Y** and state the function of each.



- (iv) Power tools are increasingly replacing the use of hand tools in our workshops. State **THREE** safety precautions that should be observed when operating power tools and briefly outline the reason for each precaution.

5. Answer 5A or 5B

5A. The diagram on the right shows a folded acrylic phone holder sitting on a wooden turned base.

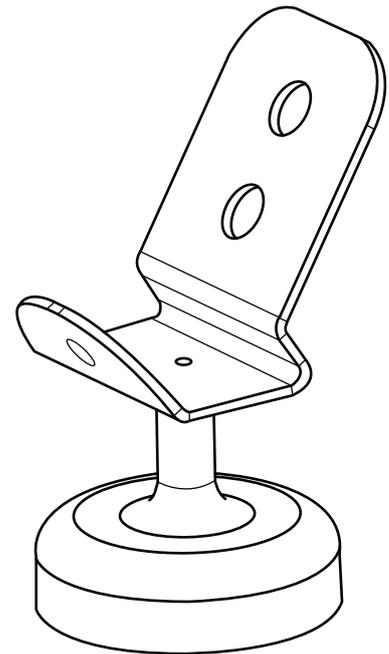
- (i) Using a *neat freehand sketch*, draw the development that would be marked out on the acrylic sheet in order to manufacture the acrylic phone holder.

Show clearly all fold lines and cut lines.

- (ii) A strip heater is required to soften the acrylic so it can be bent easily to form the required shape.

With the aid of notes and *neat freehand sketches*, describe how you would use the strip heater to bend one of the angles required.

- (iii) Several holes are to be drilled in the acrylic sheet. Using notes and *neat freehand sketches*, describe how you would drill one of these holes safely.



OR

5B. The diagram shows a wooden chair, the legs of which have been formed by laminating thin strips of wood.

- (i) With the aid of notes and *neat freehand sketches*, describe how a similar leg could be manufactured in a school workshop.
- (ii) Select a suitable adhesive that could be used to bond the laminates together and explain the terms Open Assembly Time and Pot Life.
- (iii) Select a suitable clear applied finish for the chair and give **TWO** reasons for your answer.
- (iv) Select a suitable method of application for your finish and give **ONE** reason for your answer.

