



Junior Certificate Examination, 2011

Materials Technology (Wood)

Higher Level

Section B (60 marks)

Monday, 20 June

Afternoon, 2:00 - 4:00

Instructions

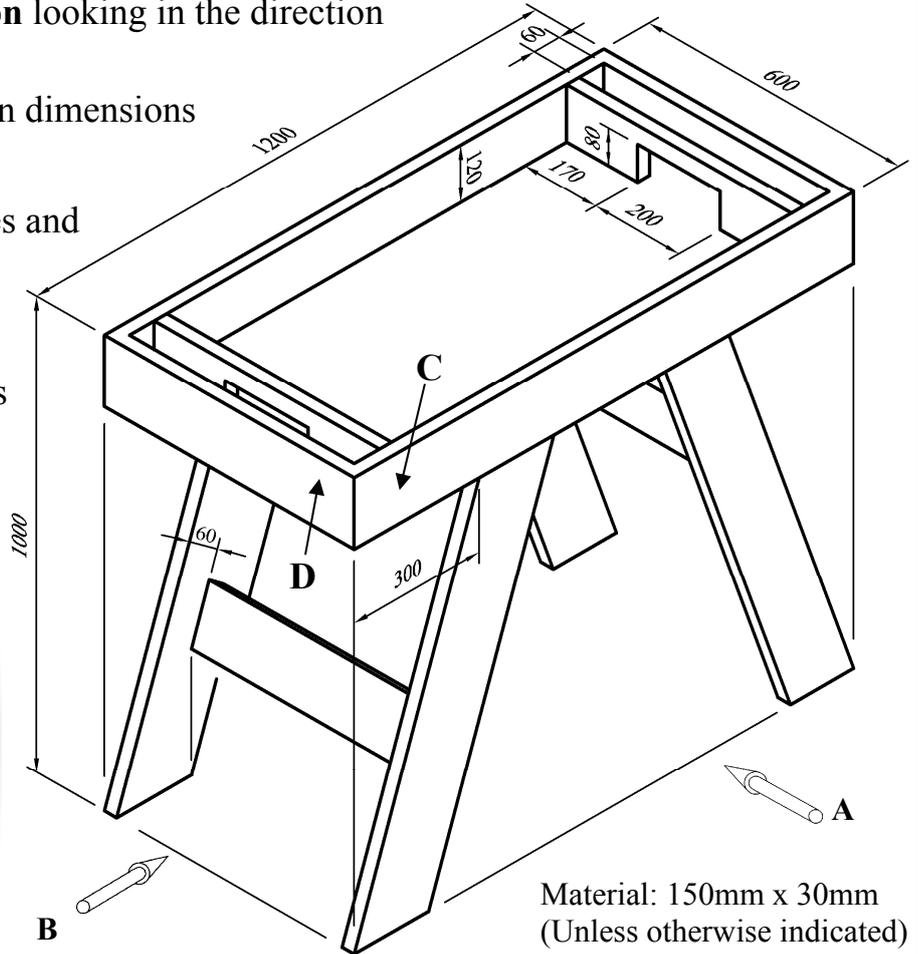
- (a) Answer **three** questions. All questions carry equal marks.*
- (b) You may answer either question 5A **or** question 5B but **not both** of them.*
- (c) Where sketches are required they may be done freehand or on the graph paper provided.*
- (d) Write your examination number on the answer book 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 3D graphic below shows a wooden soccer table which is also shown as a dimensioned isometric drawing.

- (i) To a scale of 1:5, draw a **front elevation** of the soccer table 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 members **C** and **D** at the corner.



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

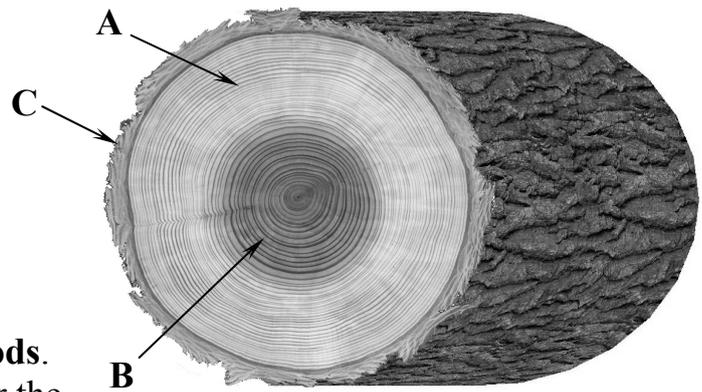
- (ii) The diagram shows a collection of First-Aid items similar to those found in most homes.

Using notes and **neat freehand sketches** to communicate your ideas, design a suitable wall-mounted unit that would store these items.



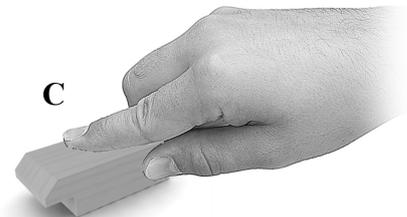
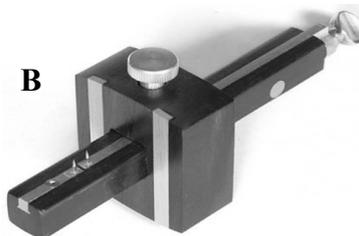
- (iii) State **TWO** specific design requirements that must be considered for the proposed unit.
- (iv) Describe, using notes and **neat freehand sketches**, how you incorporated these requirements into your final design solution.

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



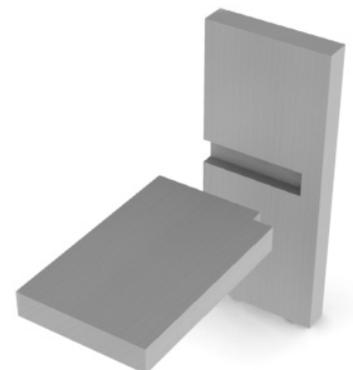
- (i) Name the parts of the cross section labelled **A**, **B** and **C** and give a brief description of each.
- (ii) Trees are divided into two main groups, **hardwoods** and **softwoods**. Compare these two groups under the following headings: **Leaves, seeds, timber & preferred climate**.
- (iii) Food is manufactured in the leaves of a tree using a number of raw materials. What is the correct name for this **chemical reaction**? Name **TWO** of the raw materials necessary for this chemical reaction to take place.
- (iv) The rate of deforestation of our tropical rainforests is alarming.
 - (a) State **TWO** reasons why rainforests should be conserved.
 - (b) Suggest **TWO** ways that we can reduce our use of hardwoods.

4. (i) State the correct name for each of the gauges labelled **A**, **B** and **C** below.



(ii) With the aid of notes and *neat freehand sketches*, describe how the gauge labelled **B** would be set and used.

(iii) The diagram shows a stopped housing joint often used in bookshelves. With the aid of notes and *neat freehand sketches*, describe the stages in **marking out** and **removing the waste** on each piece.



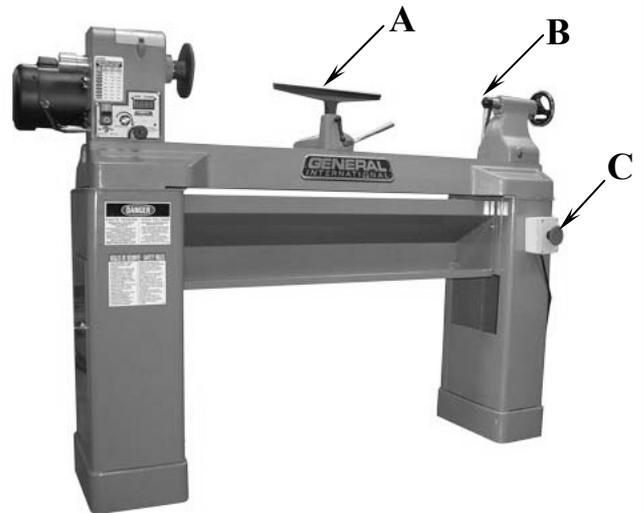
(iv) The chisel is one of the most frequently used hand tools in the M.T.W workshop. State **TWO** safety precautions that should be observed when using chisels.



5. Answer 5A or 5B

5A. The diagram on the right shows a woodturning lathe.

- (i) Name the parts labelled A, B & C and state the function of each part.
- (ii) The diagram below shows a leg of a chair which has been turned on a lathe.



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.

- (iii) With the aid of notes and *neat freehand sketches*, describe how a piece of wood would be **prepared** and **mounted** on a lathe.
- (iv) State **THREE** safety precautions that should be observed when turning wood on a lathe.

OR

5B. The diagram shows a coffee table made from a hardwood.

- (i) Name **THREE** clear finishes that could be applied to the table.

Select **ONE** finish that would be best suited for the table and give **TWO** reasons for your choice.

- (ii) With the aid of *neat freehand sketches*, describe, in detail, the steps you would follow to **prepare** the wood for the finish you have chosen.
- (iii) State **TWO** specific safety precautions that should be observed when using applied finishes.
- (iv) Select a suitable hardwood for the manufacture of the coffee table and give **TWO** reasons for your choice of hardwood.

