Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2012

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

Monday, 18 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.*

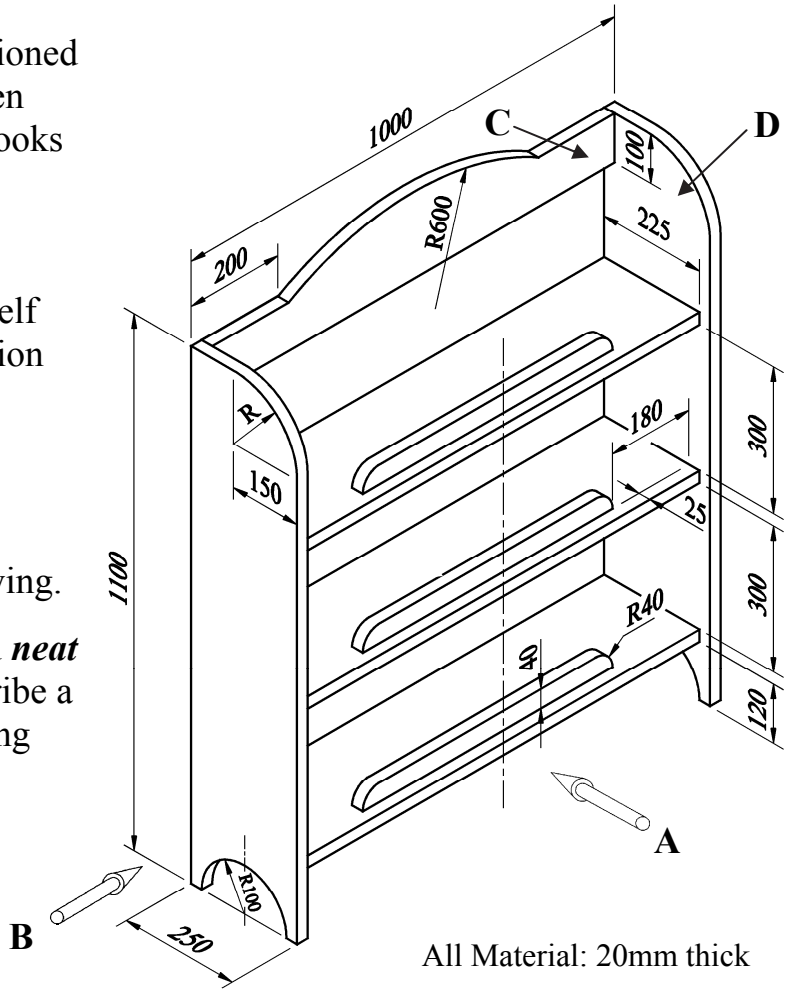
(e) ***Question 1** from this section must be answered on drawing paper. All other questions should be answered on the answer book supplied.*

1. The diagram shows a dimensioned isometric drawing of a wooden shelf unit for the storage of books and toys.

(i) To a scale of 1:5, draw a **front elevation** of the shelf unit 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.

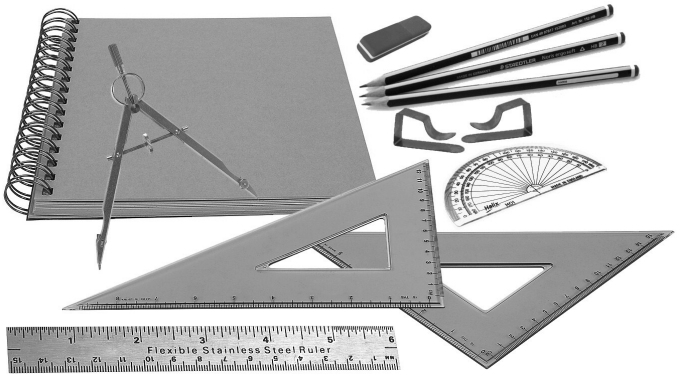
(ii) With the aid of notes and ***neat freehand sketches***, describe a suitable method of jointing the members **C** and **D**.



All 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 diagram shows a selection of drawing equipment that is used by MTW students to produce working drawings.

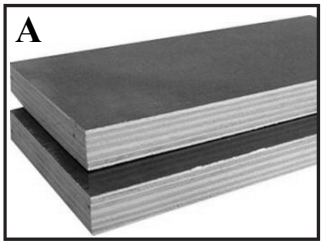


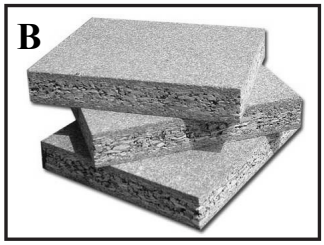
Using notes and ***neat freehand sketches*** to communicate your ideas, design a suitable wooden portable storage unit for these items. The unit should incorporate a sloping drawing board surface that can adjusted to different angles.

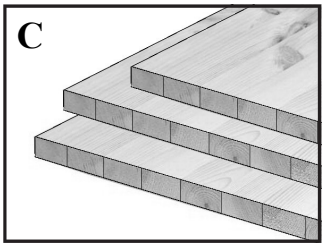
(iii) Describe using notes and ***neat freehand sketches*** how you specifically incorporated the following requirements into your final design solution.

(a) The portability of the unit
(b) The adjustable sloping surface.

3. (i) Name the **THREE** manufactured boards labelled **A**, **B**, and **C** below.







(ii) Briefly explain **FOUR** advantages that manufactured boards have over solid wooden boards.

(iii) With the aid of notes and ***neat freehand sketches*** describe, in detail, the manufacture of **ONE** of the above boards.

(iv) Deforestation of our tropical rainforests is an important environmental issue. With reference to protection and conservation:

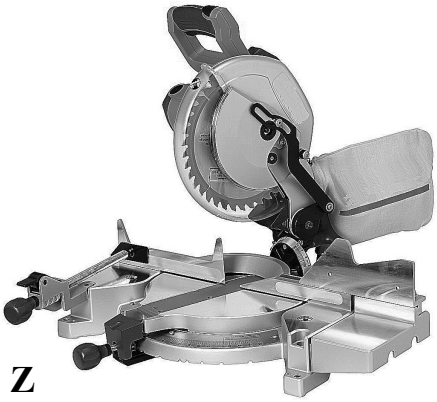
(a) State **TWO** reasons why we should conserve our tropical rainforests

(b) State **TWO** ways that the use of manufactured boards can help reduce the current rate of global deforestation.

4. (i) State the correct name for the power tools labelled **X**, **Y** and **Z** below.

X

Y



Z

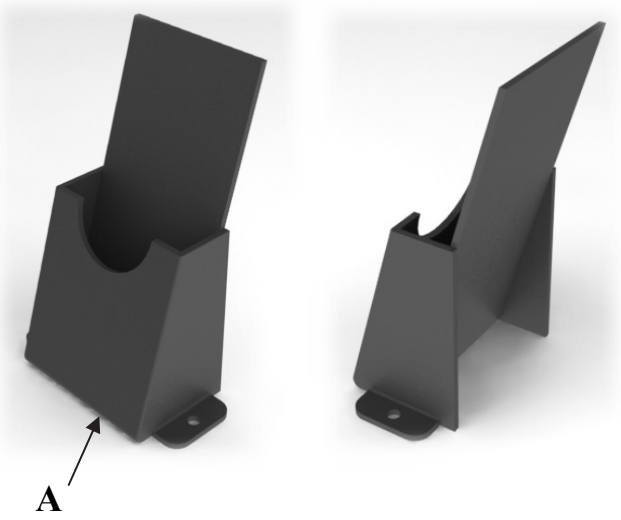
(ii) (a) The power tool labelled **X** above incorporates a ***"keyless chuck"***. Explain what is meant by the term ***"keyless chuck"*** and state **TWO** advantages that it has over a traditional chuck.

(b) This power tool is often used to make holes of a specific required depth in wood. With the aid of notes and ***neat freehand sketches*** describe how this could be done.

(iii) State **THREE** safety precautions that should be observed when a person is using the piece of equipment labelled **Y** above and briefly outline the reason for each precaution.

5. Answer 5A or 5B

5A. The diagrams show two views of an acrylic display holder for brochures.



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

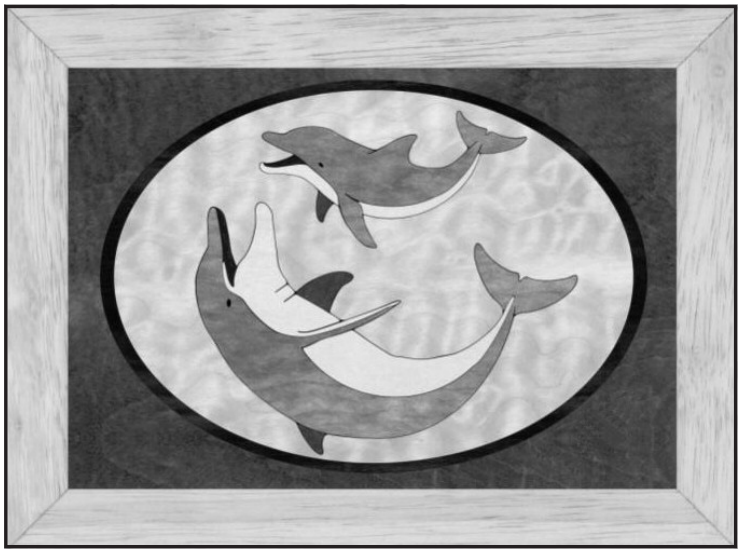
(ii) Name the machine that would be used to soften the acrylic so that it can be bent easily to form this holder.

(iii) Using notes and ***neat freehand sketches*** describe how you would use the machine to create the bend at **A** to a required angle.

(iv) The diagrams show holes in the base of the holder. List **THREE** specific safety precautions that should be followed when drilling holes in acrylic.

OR

5B. The diagram shows a picture of two dolphins made from veneers (marquetry).



(i) With the aid of notes and ***neat freehand sketches*** describe how you would transfer the picture from a sheet of paper onto the veneers.

(ii) Using notes and ***neat freehand sketches*** describe how to cut the veneers for this picture to ensure that they fit accurately.

(iii) Name a suitable adhesive for applying the veneers to the base and give a reason for your answer.

(iv) Name **ONE** method of manufacturing veneers and describe the process using a ***neat freehand sketch***.