Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination 2008

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:

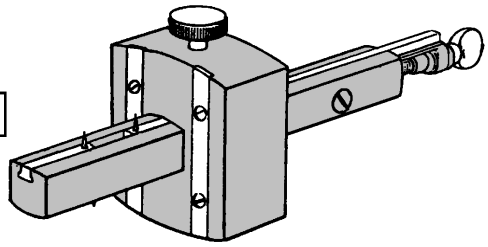
Centre Number

Section A	
1	
2	
3	
4(a) or (b)	
5	
Total	

SECTION A - 40 MARKS

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

1. (i) Using a tick, identify the woodworking tool shown.

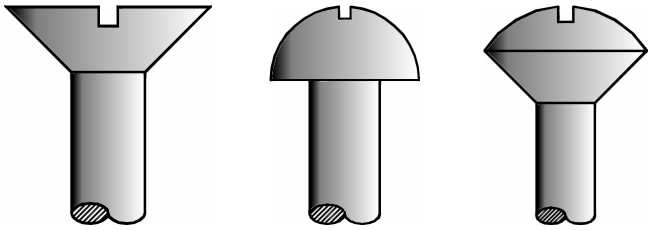


Marking Gauge ☐ **Cutting Gauge** ☐ **Mortise Gauge** ☐

(ii) Give one specific use for this tool.

USE

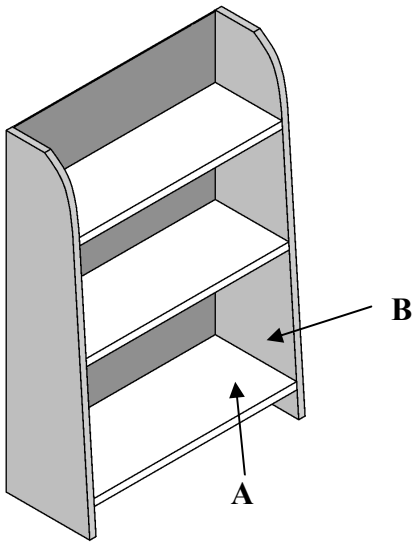
2. Shown in the diagrams are the heads of three different screws.
In the spaces provided, name any **TWO** of the head types.



NAME

NAME

3. A bookshelf unit is shown below. In the space provided sketch a suitable means of joining shelf **A** to side **B.**



4. Cordless drills are often used during Materials Technology Wood classes.
State **TWO** advantages of using cordless drills**.**

ADVANTAGE 1

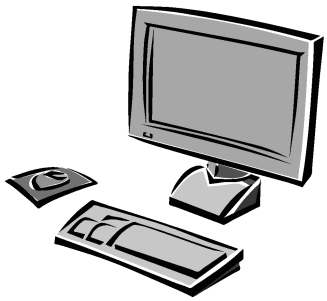
ADVANTAGE 2

5. Typical stages associated with a ***Design Process*** are listed on the right.

Place these stages in the correct order, from **1 to 5**.

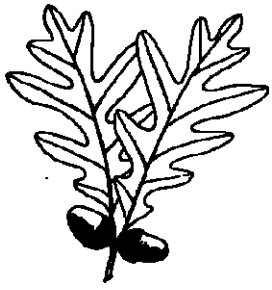
Stage	Order (1-5)
Sketches/Working Drawings	
Evaluation	
Design Ideas/Solutions	
Investigation and Research	
Analysis of Brief	

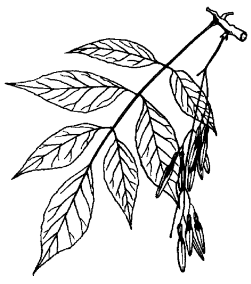
6. With reference to furniture production state what the letters **C.A.M.** stand for.



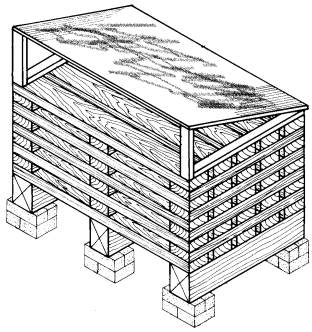
C	**A**	**M**

7. The diagrams show the leaves and fruit of three common Irish trees.
Name the trees in the spaces provided.





8. The diagram shows a method of seasoning timber.



(i) What is this method of seasoning called?

METHOD _____

(ii) State **ONE** disadvantage of this method of seasoning.

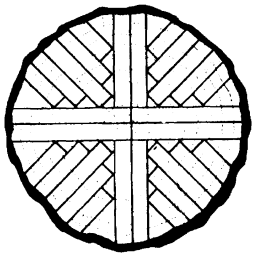
DISADVANTAGE _____

9. Dry rot is caused by a fungal attack on timber.
State **TWO** conditions that are necessary for a fungal attack to occur.

CONDITION 1 _____

CONDITION 2 _____

10. The diagram shows a method of converting logs.



(i) Give the correct name for this method of conversion.

METHOD _____

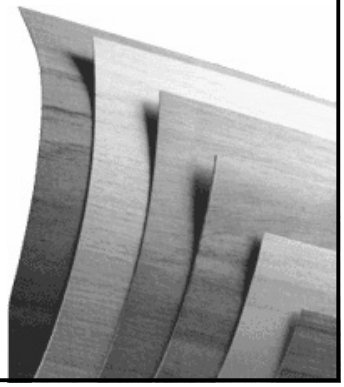
(ii) This method of conversion reveals a grain feature in oak boards.
What is the grain feature called?

FEATURE _____

11. The diagram shows a selection of wood veneers for use on a marquetry panel.

(i) Suggest the most suitable adhesive for gluing the veneers to the panel.

ADHESIVE _____



(ii) Give a reason for your choice.

REASON _____

12. State **TWO** specific safety precautions that should be observed when using wood chisels.

PRECAUTION 1 _____

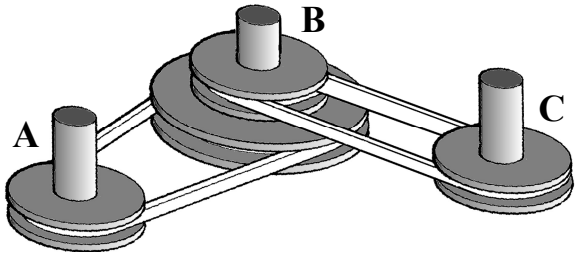
PRECAUTION 2 _____

13. (i) If pulley **A** rotates clockwise, indicate by ticking the box, the direction in which pulley **C** will rotate?

CLOCKWISE ☐ ***or*** **ANTI-CLOCKWISE** ☐

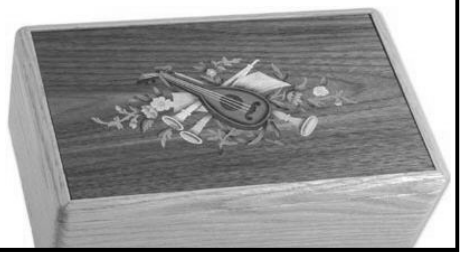
(ii) The small pulleys are 100mm in diameter and the large pulley is 200mm in diameter.

If pulley **A** rotates at 180 revolutions per minute (R.P.M.), what is the rotational speed of pulley **C**?



SPEED OF C _____ **R.P.M.**

14. State **TWO** reasons why it is necessary to apply a finish to a wooden artefact.

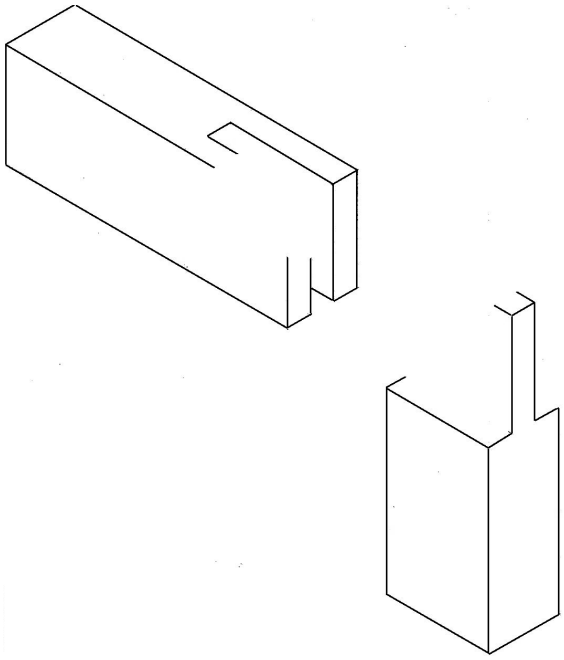


REASON 1 _____

REASON 2 _____

15. The diagram shows an incomplete exploded isometric sketch of a ***Bridle Joint***.

Complete the sketch of the joint.

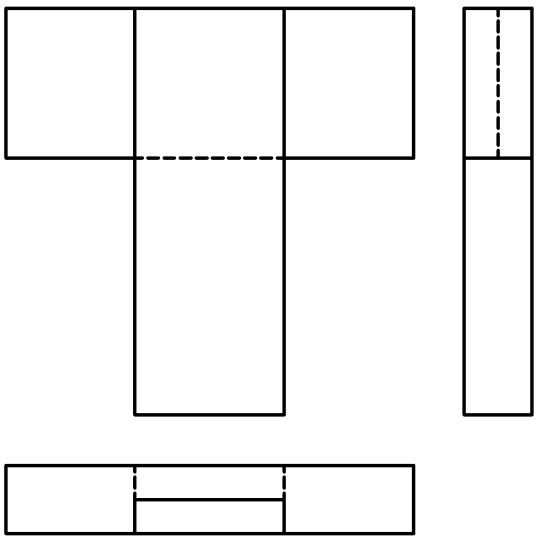


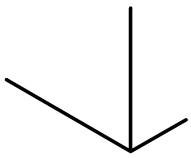
16. Brass is an alloy of two metals.
Name the **TWO** metals.

METAL 1 ____

METAL 2 ____

17. The elevation, plan and end view of a ***Tee Halving Joint*** are shown.
Make a 3D sketch of the ***Tee Halving Joint*** on the given axes.



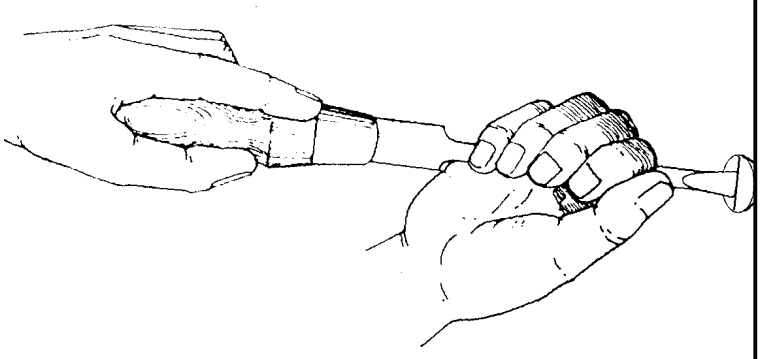


18. The diagram shows a screwdriver being used to insert a screw. Using a tick, identify the force which is being applied to the screw.

COMPRESSION ☐

TORSION ☐

TENSION ☐



19. (i) What is the correct name for the woodworking machine shown?

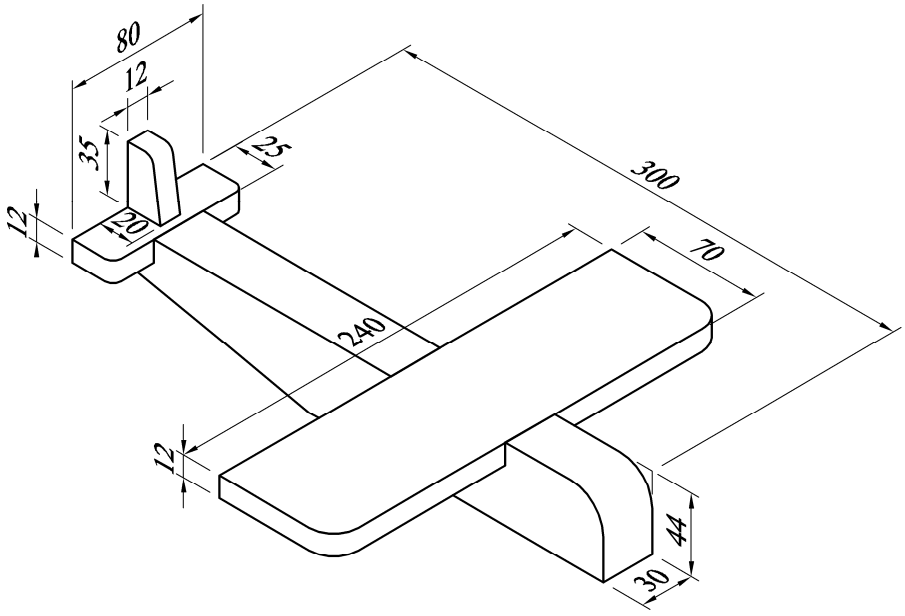
NAME _____

(ii) State **TWO** specific safety precautions that should be observed when using this machine.

SAFETY 1 _____

SAFETY 2 _____

20. The diagram shows a toy aeroplane made from wood.



Complete the following cutting list for the toy aeroplane.

Description	Quantity	Length	Width	Thickness
Body	1		44	30
Wing	1		70	
Tail	1	80		12
Fin		35	20	12

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

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Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination 2008

Materials Technology Wood
Higher Level
Section B (60 Marks)

Instructions

(a) *Answer **any** three questions. All questions carry equal marks.*

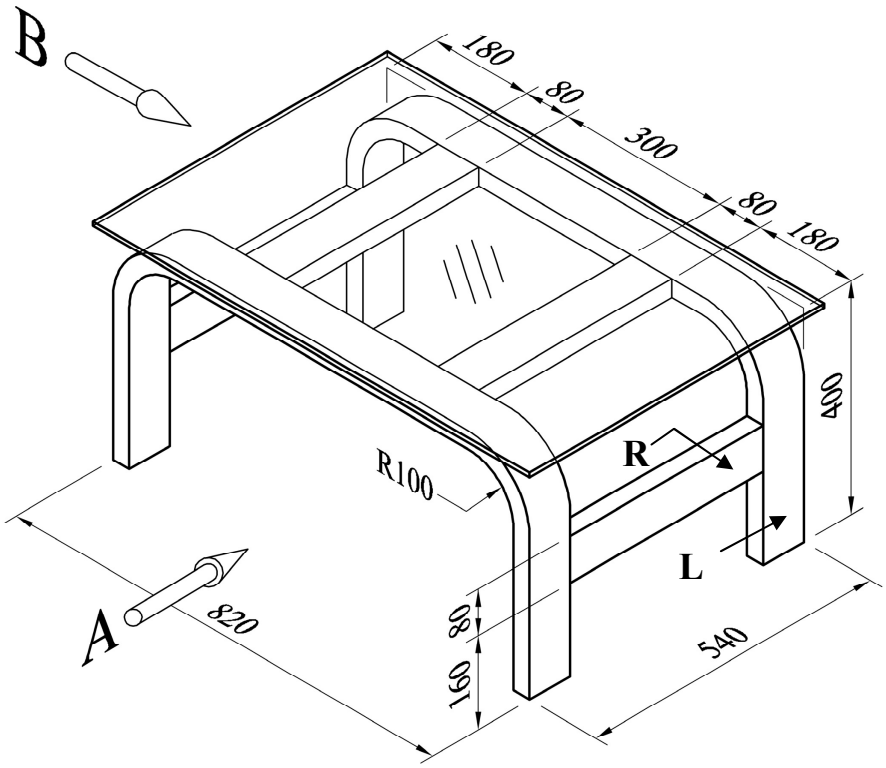
(b) *Where sketches are required they may be done freehand or on the graph paper provided.*

(c) *Write your examination number on the answer book and on all other pages used.*

(d) *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 coffee table consisting of a wooden frame and a glass top.

All frame material is 80mm x 32mm



(i) To a scale of 1:4, draw a **front elevation** of the wooden frame 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 joining the members **R** and **L**.

2. (i) Two stages in a typical design process are **sketches/working drawings** and **evaluation**. Explain these two stages.

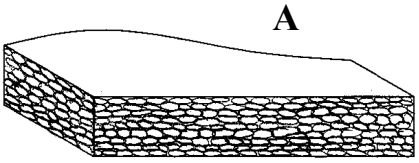
(ii) The diagram shows a collection of items which are often found in a home. Using notes and ***neat freehand sketches*** to communicate your ideas, design a unit to store these items.

(iii) State **TWO** specific requirements that must be considered in your design.

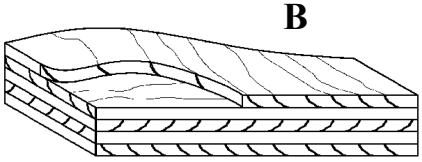
(iv) Suggest a suitable material for the manufacture of the unit and give **TWO** reasons for your choice.

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

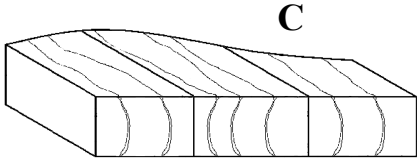
A



B



C



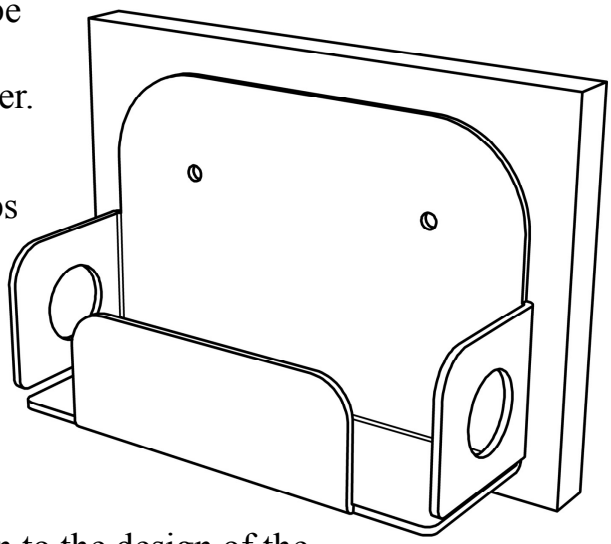
(ii) State **FOUR** advantages of manufactured boards.

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

(iv) State how the use of manufactured boards can help reduce the current rate of global deforestation.

4. Answer either A or B

A. The diagram shows an acrylic letter holder with a hardwood back.



(i) Draw the development that would be marked out on an acrylic sheet in order to manufacture the letter holder.

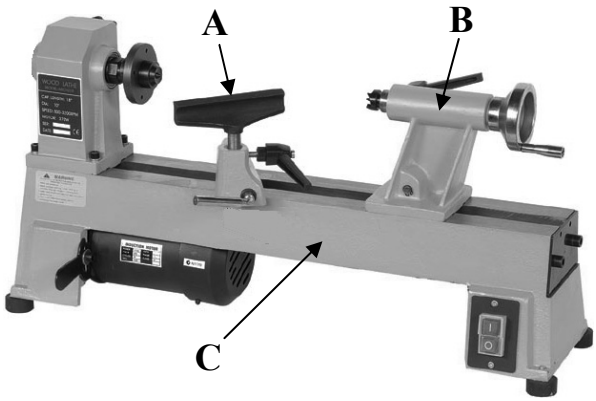
(ii) With the aid of notes and ***neat freehand sketches*** describe the steps involved in drilling the two small holes in the acrylic.

(iii) Using notes and ***neat freehand sketches*** describe how the large holes at the sides of the holder could be formed.

(iv) Suggest an appropriate modification to the design of the hardwood back which would improve the appearance of the unit.

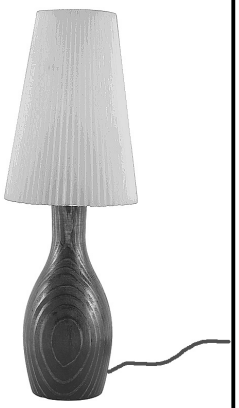
OR

B. The diagram shows a woodturning lathe.



(i) Name the parts of the lathe labelled **A**, **B** and **C** and briefly describe the function of **each** part.

(ii) The diagram shows a table lamp turned from wood. Describe, in detail, and with the aid of notes and ***neat freehand sketches***, how a hole could be formed in the body of the lamp to accommodate the electric cable.



(iii) The lamp has a maximum diameter of 150mm. Which of the following speeds would be the most appropriate for turning the lamp, **100 RPM**, **400 RPM** or **1000 RPM**?

(iv) State **THREE** specific safety precautions that should be observed when turning wood on a lathe.

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

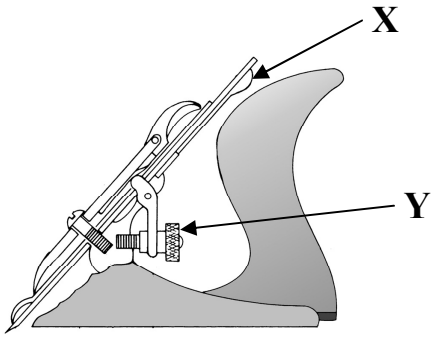
A

B

C

(ii) Select any **TWO** of the above planes and describe their appropriate use.

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



(iv) The blade of the plane, which is shown, has been badly damaged.

Describe, in detail, with the aid of notes and ***neat freehand sketches***, the steps involved in re-sharpening the cutting edge of the blade.