2019. S54A

2019J047AAEL

Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2019

Materials Technology (Wood)

Higher Level

Section A (40 marks)

Monday, 17 June
Afternoon, 2:00 - 4:00

Instructions

(a) *Write your **examination number** in the box provided and on all other pages used.*

(b) *This booklet **must** be handed up at the end of the examination.*

(c) *Answer any **sixteen** questions.*

(d) *All questions carry equal marks.*

(e) *Answer the questions in the spaces provided.*

Examination Number

Centre Number

1.	Total of end of page totals	
2.	Aggregate total of all disallowed question(s)	
3.	Total mark awarded (1 minus 2)	
4.	Bonus mark for answering through Irish (if applicable)	
5.	Total mark awarded if Irish Bonus (3+4)	

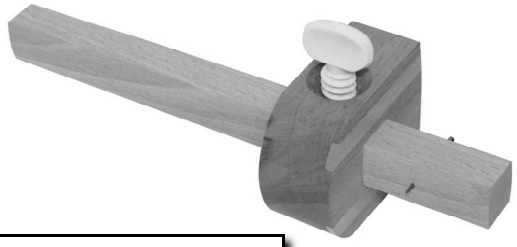
Note: The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal the mark in the ***Grand Total*** box on the script.

Question	Marks	
Section A		
1		
2		
3		
4		
5A or 5B		
Total		
Irish Bonus		
Grand Total		

SECTION A - 40 MARKS

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

1. (i) Name the woodworking tool shown.



NAME

(ii) Give **ONE** specific use for this tool.

USE

2. The piece of timber is finished with an edge moulding as shown.

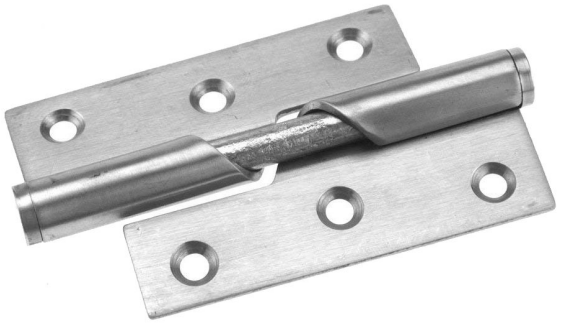
(i) Name the edge moulding.

NAME

(ii) Identify **ONE** appropriate method of applying this edge moulding.

METHOD

3. The diagram shows a common type of hinge.



(i) Name this hinge type.

NAME

(ii) Why would you use this specific type of hinge?

USE

4. (i) Name the tool shown.

NAME

(ii) Give **ONE** specific use for this tool in MTW.

USE

5. CAD/CAM is commonly used in industry to generate models or prototypes prior to mass production.

(i) What do the letters **CAM** stand for?

C

A

M

(ii) Give **ONE** advantage of using **CAM** to generate a prototype.

ADVANTAGE

6. The board shown has become distorted across its width.

(i) What is this distortion called?

ANSWER

(ii) What causes a board to distort in this manner?

ANSWER

7. The image shows a wooden stand for personal items which is to be stained and finished with two coats of varnish.

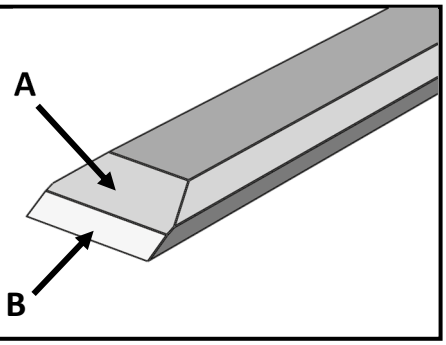
The wood surface has some indents which require filling prior to finishing.

Identify **FIVE** steps, in the correct sequence, which should be followed when surface finishing the artefact.

1. → **2.** → **3.** → **4.** → **5.**

8. The diagram shows the tip of a chisel.

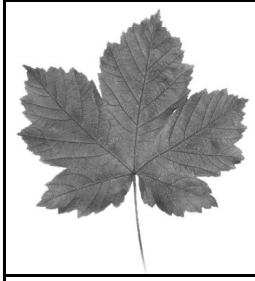
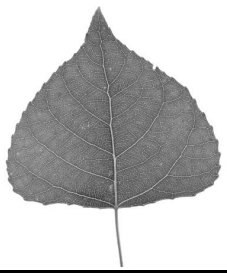
What are the correct names for the angles labelled **A** and **B**?



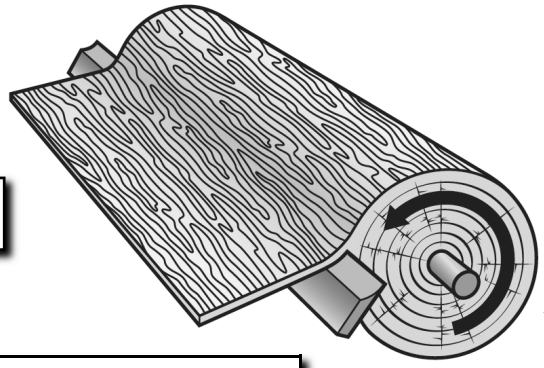
ANGLE A

ANGLE B

9. The diagram shows the leaves of five common Irish trees.
From the following list, identify **each** tree: ***Beech***, ***Horse Chestnut***, ***Holly***, ***Poplar***, ***Sycamore***.

10. The diagram shows a log being peeled to produce a continuous thin layer of wood.



(i) What is this method of wood preparation called?

NAME

(ii) Give **ONE** use for this thin layer of wood.

USE

11. (i) Name the tool shown.

ANSWER

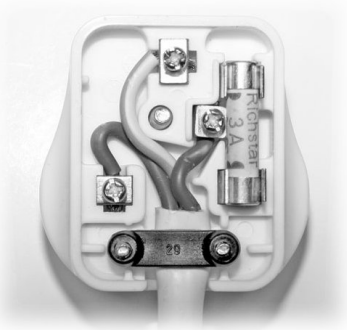
(ii) State **ONE** appropriate use for this tool.

USE

12. The image shows the wiring of a three-pin plug.

(i) State the correct colour of each wire.

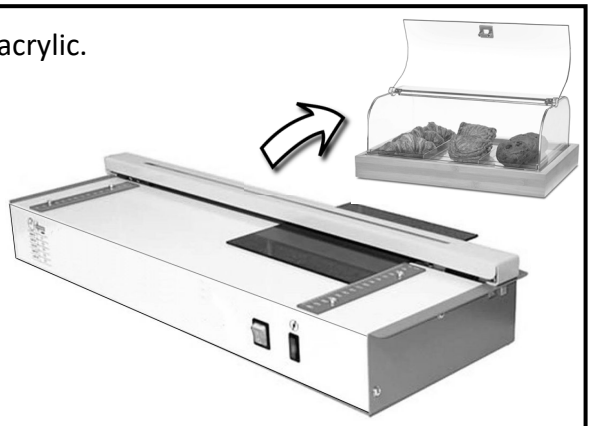
LIVE **NEUTRAL** **EARTH**



(ii) What is the function of the **FUSE** in a plug?

FUNCTION

13. The bakery display case shown is made from wood and acrylic. The machine shown is used to bend the acrylic.



(i) Name the machine.

NAME

(ii) Use a tick (✓) in the appropriate box below to indicate if acrylic is:

THERMOSETTING ☐ or **THERMOPLASTIC** ☐

14. Calculate the **Moisture Content** (as a %) of a piece of seasoned wood, given the following:

Wet weight = 21.6 grams

Dry weight = 20 grams

Calculation:

ANSWER %

15. (i) Name the woodworking machine shown.

NAME

(ii) What is the function of the part labelled **A**?

PART A

(iii) State **ONE** specific safety precaution that should be observed when using this machine.

PRECAUTION

16. The diagram shows a cordless drill being used by a student to insert a screw.

(i) What is the correct name for the turning force being applied by the drill to the screw?

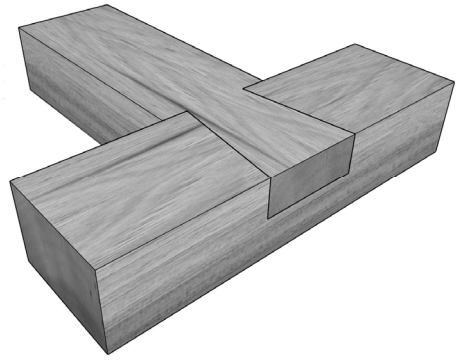
FORCE

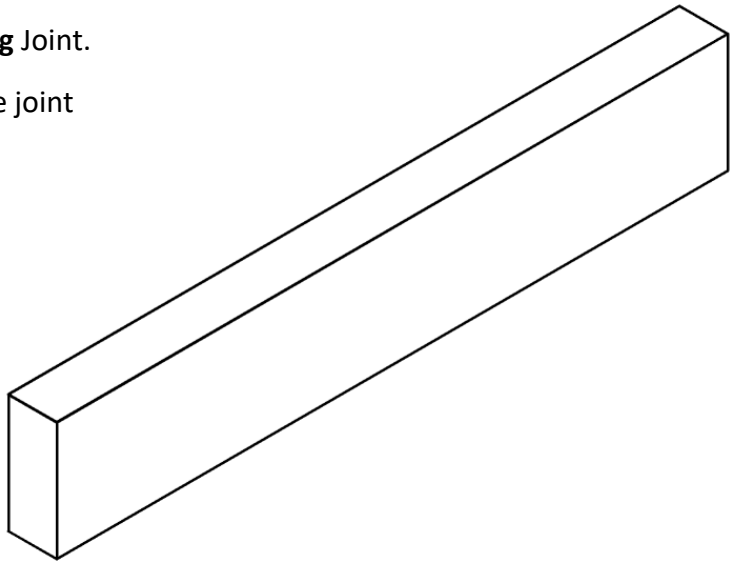
(ii) Name **ONE** other type of force.

FORCE

17. The graphic below shows a **Dovetail Halving** Joint.

Sketch the marking out of **both** parts of the joint on the piece of wood on the right.





18. Using a tick (✓) in the table below, identify whether each tree is **Hardwood** or **Softwood**.

Hardwood	Trees	Softwood
	Birch	
	Cedar	
	Norway Spruce	
	Larch	
	Willow	

19. Name the parts of the woodturning lathe labelled in the image.

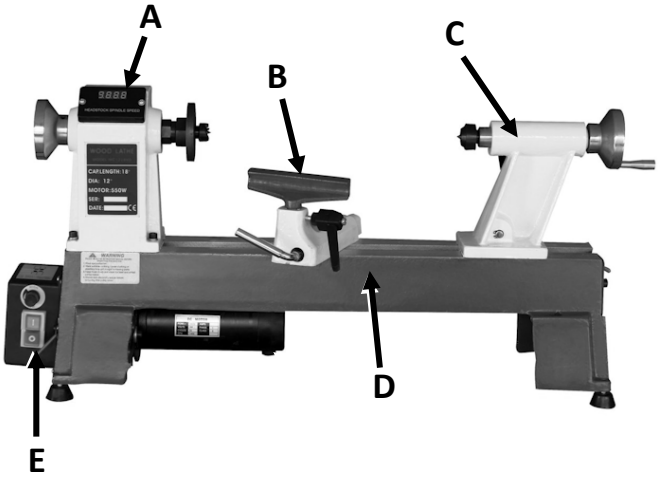
A _____

B _____

C _____

D _____

E _____



20. The image on the right shows a wooden bench.

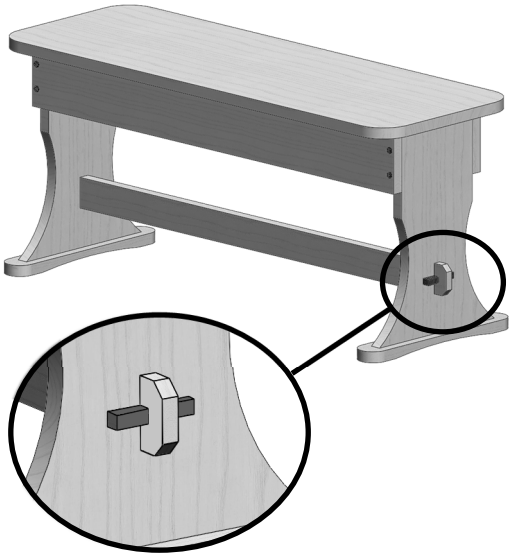
An Elevation and End View of the bench are shown in the dimensioned drawing below.

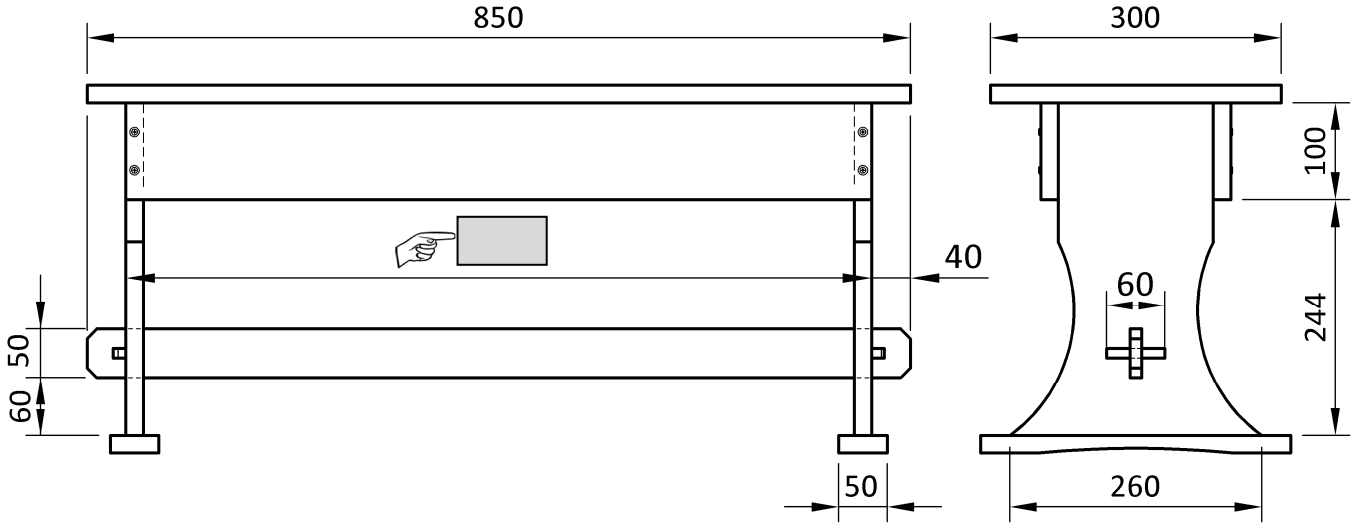
The bench is assembled using butt joints, screws and tusk tenon joints.

All material is 18 mm thick.

(i) Complete the cutting list given in the table below.

(ii) Insert the missing dimension in the box indicated by the hand in the **Elevation**.

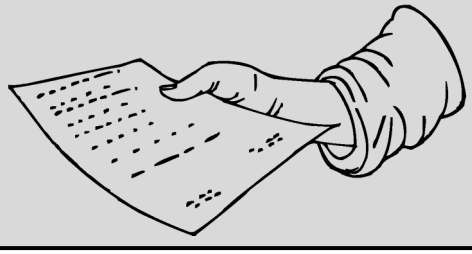




Description	Quantity	Length	Width	Thickness
Bench Top	1	850	300	18
Vertical Sides	2		260	18
Top Horizontal Rails	2	770	100	18
Base Legs	2	320	50	18
Bottom Horizontal Rail	1		50	18
Wedge	2		12	10
Brass Screws		40	Ø4	
Screw Cups	8	Ø10		

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

Make sure your Examination Number is on the front page.



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2019. S54B

2019J047ABEL

Coimisiún na Scrúduithe Stáit

State Examinations Commission

Junior Certificate Examination, 2019

Materials Technology (Wood)

Higher Level

Section B (60 marks)

Monday, 17 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 should be done freehand.*

(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 graphics show details of a planter stand.

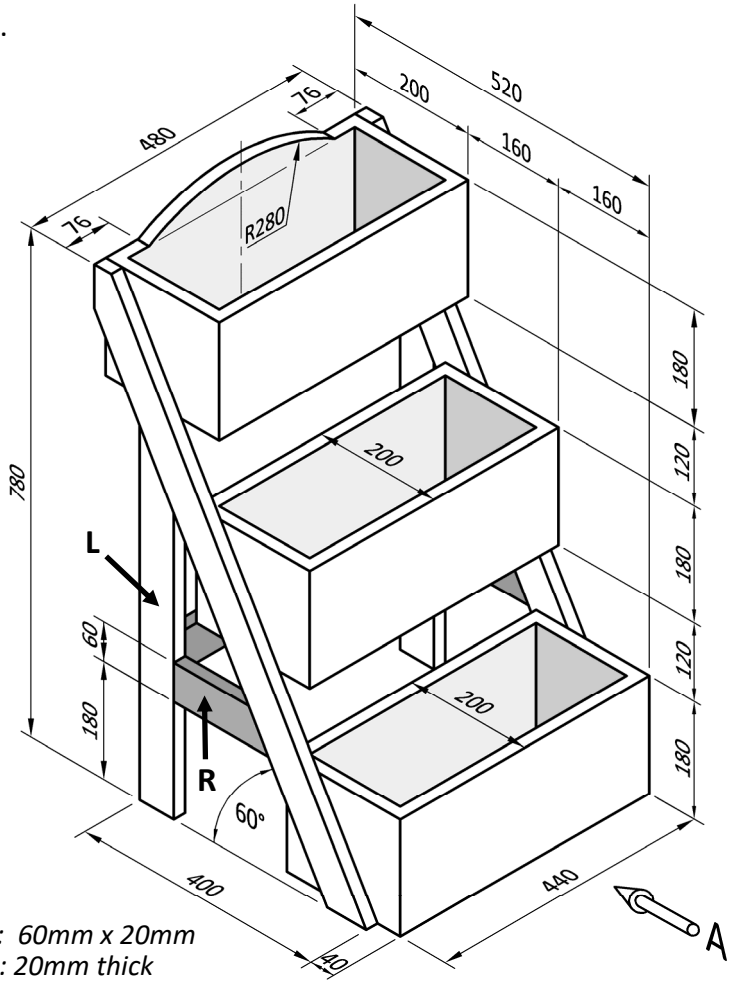
(i) To a scale of 1:4, draw an **Elevation** of the stand in the direction of arrow **A**.

(ii) Project an **End view**.

(iii) Project a **Plan** from the elevation.

Note: *Hidden detail is not required.*

(iv) Using notes and a ***neat freehand sketch,*** suggest a suitable method of joining the leg **L** and rail **R**.



Framing material: 60mm x 20mm
All other material: 20mm thick

2. (i) Two stages in a typical design process are **Analysis of Brief** and **Evaluation**. Explain these **TWO** design stages.

(ii) Storage units are often used in the home. These units are used to store and organise items. They are made in many shapes and sizes.

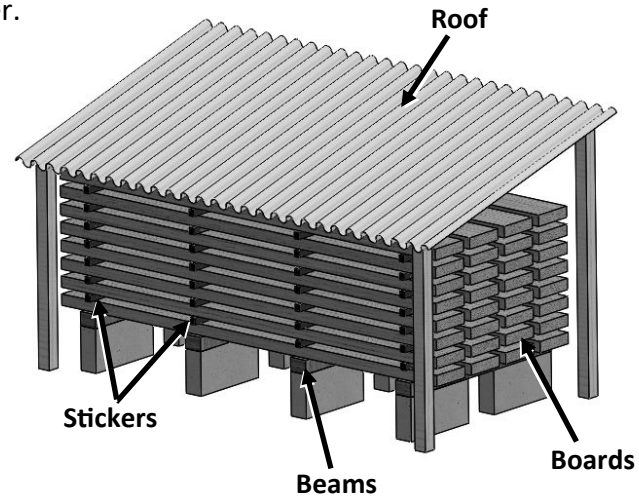
Using notes and ***neat freehand sketches*** to communicate your ideas, design an attractive **Storage Unit** with internal sub-divisions.

(iii) Using notes and a ***neat freehand sketch,*** briefly describe **ONE** woodworking joint used in your proposed design.

(iv) Lids, covers or doors are often added to storage units to enhance their appearance and functionality.

Using notes and a ***neat freehand sketch,*** show how you would attach a lid, cover or door to a storage unit.

3. The diagram shows one method of seasoning timber.



(i) State **THREE** advantages that seasoned timber has over unseasoned timber.

(ii) What is the correct name for the seasoning method shown?

Explain with the aid of notes and ***neat freehand sketches*** what happens during this seasoning process, making particular reference to the parts labelled in the diagram.

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

Compare the two methods of seasoning under **EACH** of the following headings: ***Moisture Content***, ***Duration***, ***Defects*** and ***Cost***.

(iv) The ends of the planks tend to split during the seasoning process. Describe with the aid of notes and ***neat freehand sketches***, **ONE** method of preventing this.

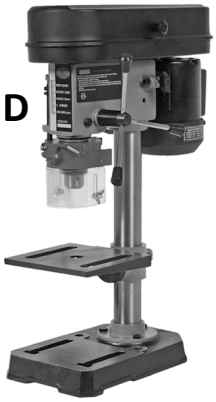
4. (i) State the correct name for **EACH** of the boring tools labelled **A**, **B**, **C** and **D**.

A

B

C

D



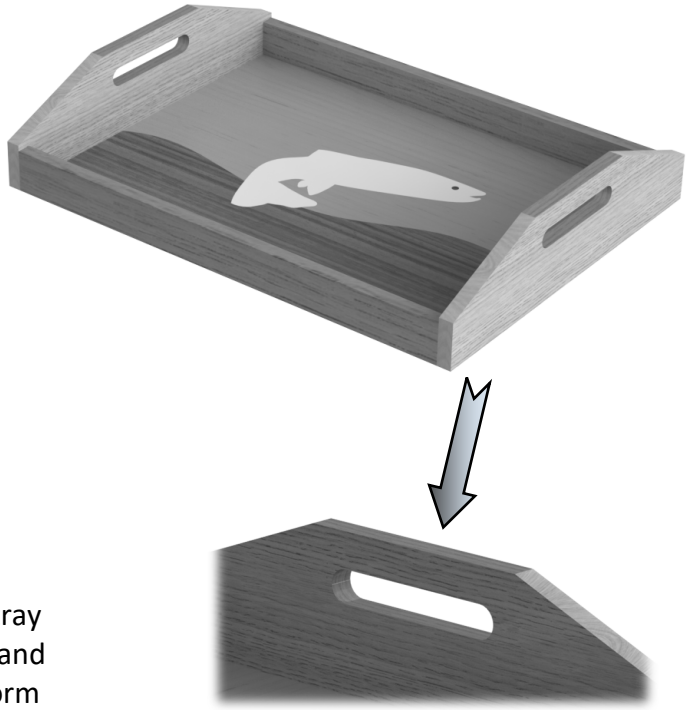
(ii) Draw a table to compare **EACH** of the above tools under the following headings: ***Portability***, ***Boring Speed***, ***Boring Depth***, ***Safety***, ***Cost*** *and* ***Accuracy***.

(iii) The machine labelled **D** above has many features which can be set by the user. With the aid of notes and ***neat freehand sketches***, identify and describe any **THREE** of these features.

(iv) State **THREE** safety precautions that should be observed when using the tools above and briefly outline the reason for **EACH** precaution.

5. Answer 5A *or* 5B

5A. The images show a wooden serving tray. The base of the tray has a veneered design (marquetry).



(i) Using notes and a ***neat freehand sketch*** describe, in detail, how to transfer the design from a sheet of paper to the wooden veneer.

(ii) Using notes and ***neat freehand sketches***, describe how you would cut the veneers to ensure that they fit together accurately.

(iii) Explain how using veneers conserves rare and expensive woods.

(iv) Slots, as shown, are to be cut to allow the tray to be carried safely. Describe, using notes and ***neat freehand sketches,*** how you would form these slots.

OR

5B. The image shows a wooden rocking horse for a child.

(i) The rockers on the toy horse are laminated. Give **TWO** advantages and **TWO** disadvantages of laminating the rockers for the horse.

(ii) Using notes and ***neat freehand sketches*** describe, in detail, the steps to be followed in producing **ONE** of these laminated rockers.

(iii) Select an appropriate clear finish for this toy and give **TWO** reasons in support of your answer.

(iv) Describe, in detail, the steps involved in **preparing** the wood for, and in **applying** your selected finish to the rocking horse.