



Junior Certificate Examination, 2017

Materials Technology (Wood)

Higher Level

Section A (40 marks)

Monday, 19 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



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Centre Number

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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 tool shown.

NAME

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

USE



2. **PVA** is a glue which is commonly used in MTW project work.

What do the initials **PVA** stand for?

P

V

A



3. (i) Name the woodworking machine shown.

NAME

- (ii) Identify **TWO** safety features of this machine.

FEATURE 1

FEATURE 2

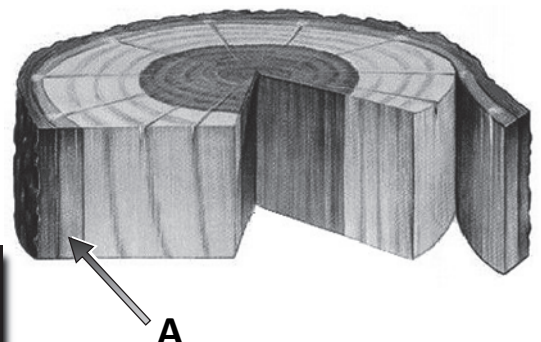


4. (i) The diagram shows a cross section through the trunk of a tree. Name the part labelled **A**.

NAME

- (ii) State the function of part **A**.

FUNCTION

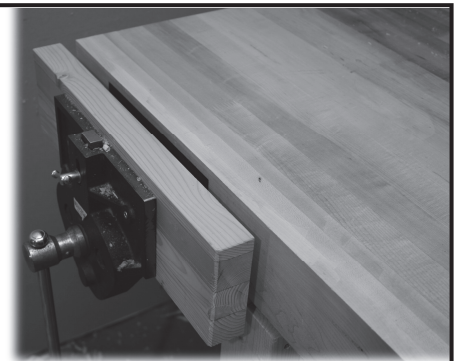


5. (i) Wooden jaws are usually fitted to a woodwork vice. What **specific** function do the **wooden** jaws serve in a woodwork vice?

FUNCTION

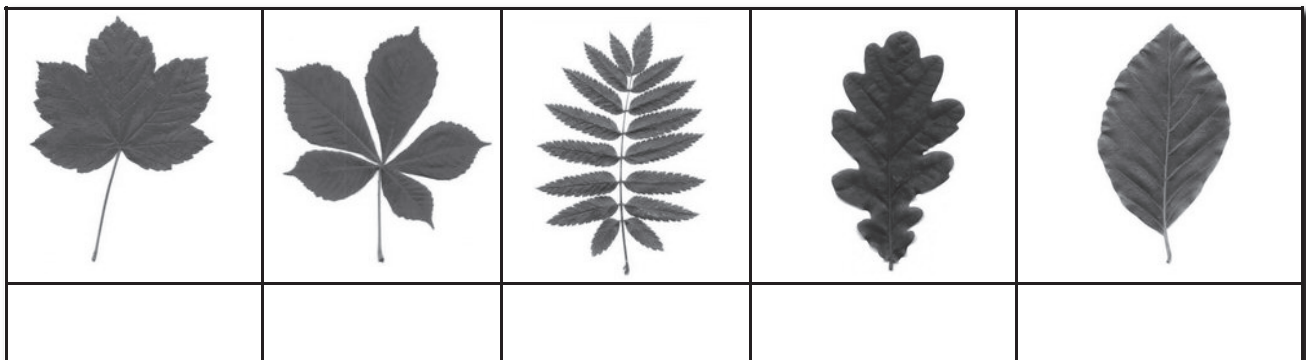
- (ii) Name the force applied to a piece of wood when it is tightened in a vice.

FORCE



6. The leaves of five common Irish trees are shown below. From the following list, state the correct name for each tree:

Beech, Horse Chestnut, Oak, Rowan, Sycamore.



7. The diagram shows a kiln for seasoning wood. Identify the parts labelled 1 to 5.

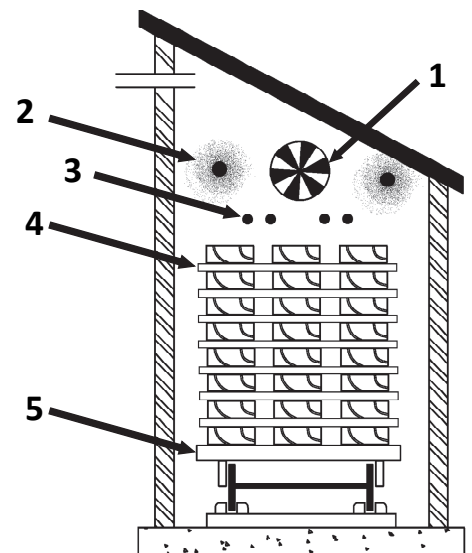
1.

2.

3.

4.

5.

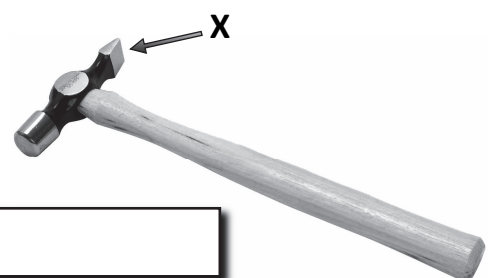


8. (i) Name the woodworking tool shown in the diagram.

NAME

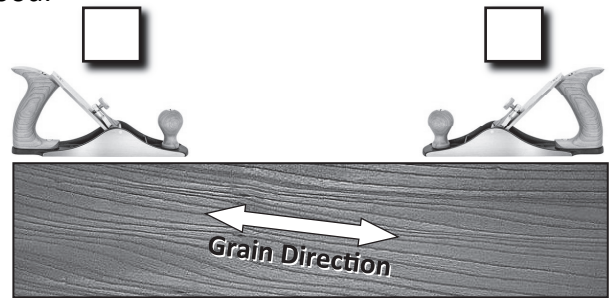
- (ii) State the function of the part labelled X.

FUNCTION



9. (i) The arrow on the diagram shows the grain direction of a piece of wood. Use a tick (✓) to indicate the correct direction for planing the wood.
- (ii) Give a reason for your answer.

REASON



10. (i) Name the woodworking tool shown.

NAME

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- (ii) Give an appropriate reason for using this tool when marking out an MTW project.

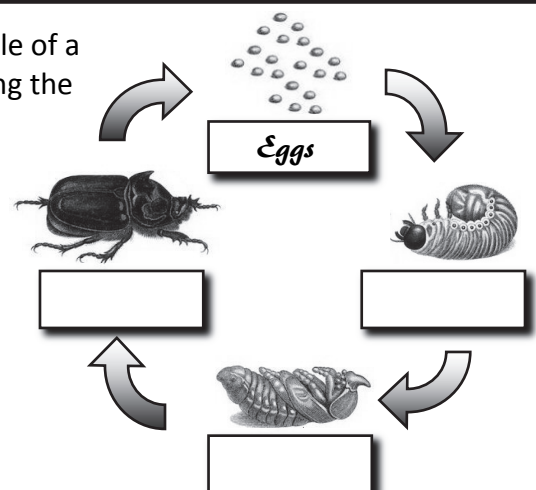
REASON

11. (i) The diagram shows the four main stages in the life cycle of a wood-boring beetle. Complete the diagram by labelling the other three stages.

- (ii) At what stage is most damage caused to wood?

STAGE

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12. (i) In the space provided below, name the method of timber conversion shown.

- (ii) On the diagram on the right, sketch another timber conversion method and give its name.



NAME

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NAME

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13. Name **THREE** of the raw materials necessary for photosynthesis to take place in a leaf.

1.

2.

3.

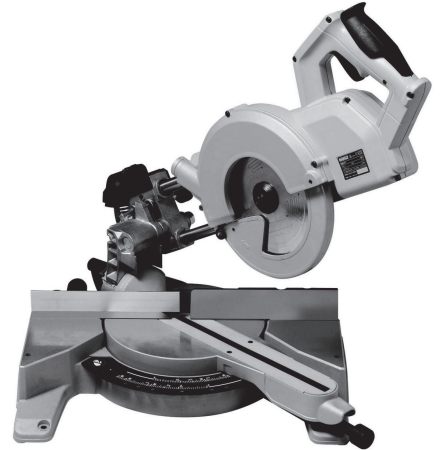


14. (i) Name the power tool shown.

NAME

(ii) Give a **specific** safety precaution to be observed when using this power tool.

PRECAUTION



15. The diagram shows a number of wooden artefacts that have been manufactured using a **CNC** laser cutter.

(i) What does the term **CNC** stand for?

C

N

C



(ii) Give **ONE** advantage of using a CNC machine?

ADVANTAGE

16. (i) The diagram shows a wooden box. The top is decorated with veneers. What is this craft technique called?

ANSWER

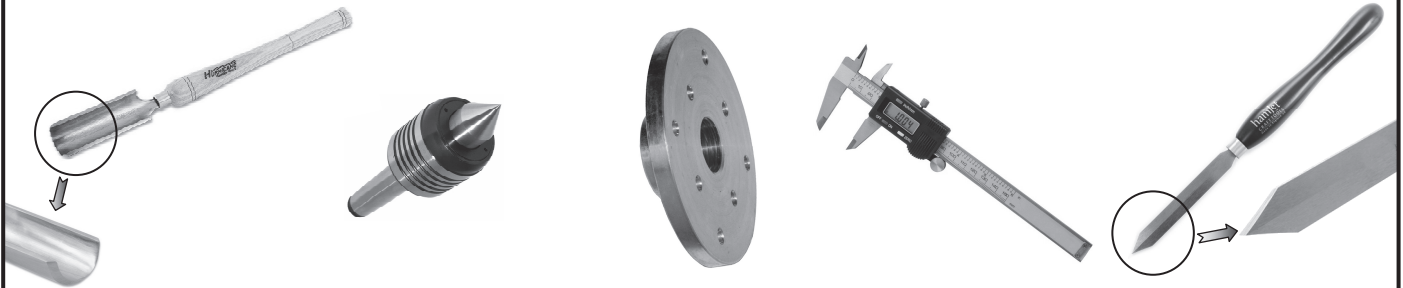
(ii) Name a tool associated with this craft technique and explain its use.

TOOL

USE



17. Name the **FIVE** items shown, which are associated with woodturning.



1.	2.	3.	4.	5.

18. Using a tick (✓) in the table below, identify whether the plastics listed are **Thermoplastic** or **Thermosetting**.

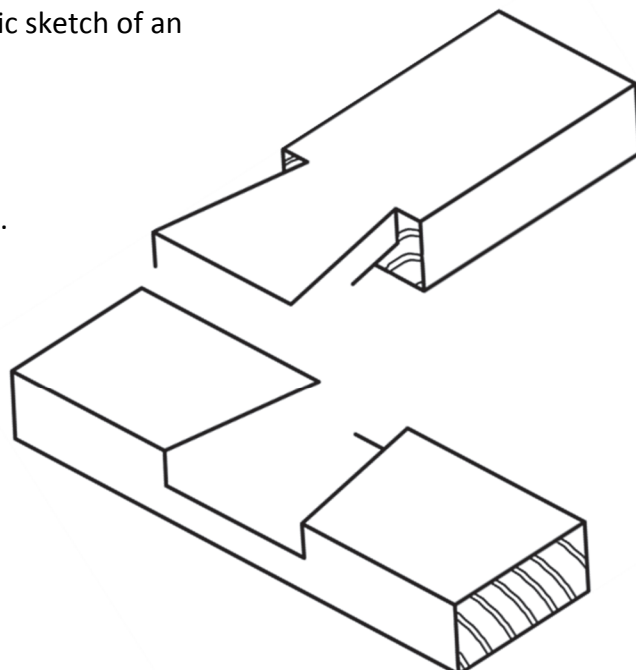


Thermoplastic	Plastic	Thermosetting
	uPVC	
	Nylon	
	Epoxy Resin	
	Acrylic	
	Polythene	



19. The diagram shows an incomplete isometric sketch of an exploded **Dovetail Halving** joint.

- Complete the sketch of this joint.
- Colour or shade the completed sketch.

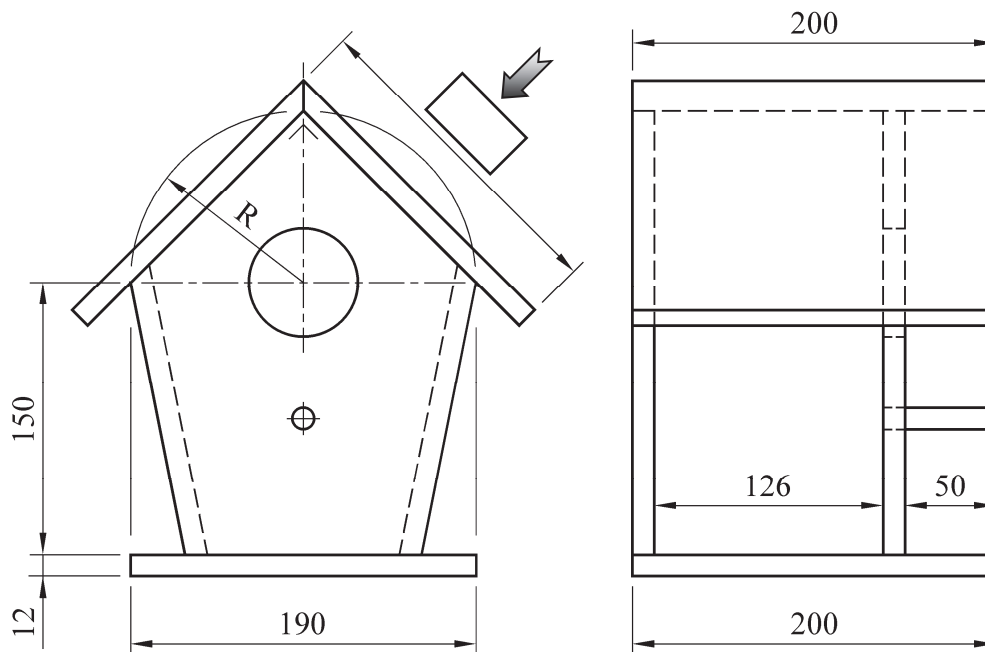


20. The image on the right shows a Bird House which was made by a student as an MTW project.

An Elevation and End View of a similar Bird House are shown in the dimensioned drawing below.

All board material is 12mm thick.

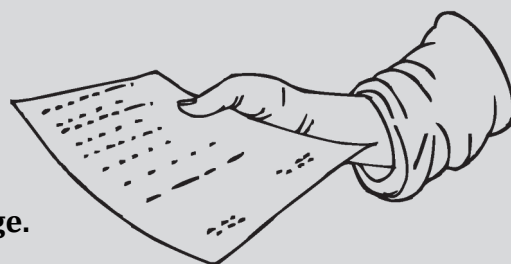
- Complete the given cutting list in the table below.
- Insert the dimension for the sloping roof surface in the box indicated by the arrow in the elevation.



Description	Quantity	Length	Width	Thickness
Base	1	200	190	
Sides	2	165		12
Front/Back	2		190	12
Roof	2	180	200	12
Dowel	1		Ø12	

**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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Page**



Junior Certificate Examination, 2017

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

Monday, 19 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.

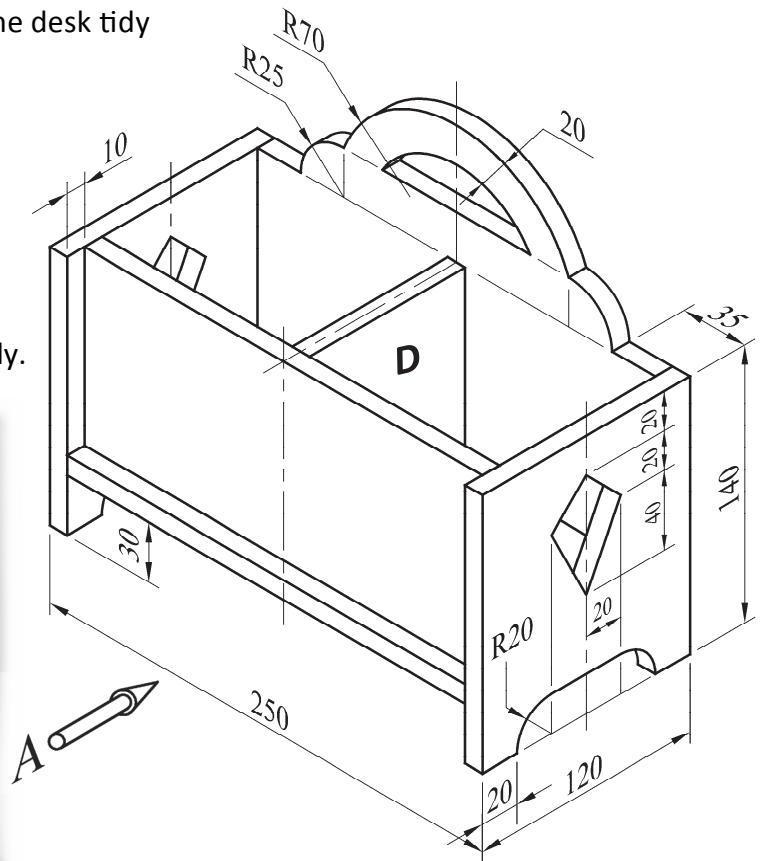
1. The diagram shows a Desk Tidy, which includes a novel calendar function.

(i) Draw a full size **front elevation** of the desk tidy in the direction of arrow **A**.

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

Note: Include hidden detail.

(iii) Using notes and **neat freehand sketches**, suggest a suitable method of joining the central divider **D** to the front of the desk tidy.



All material is 10mm thick.

2. (i) Two stages in a typical design process are **Design Ideas/Solutions** and **Evaluation**.

Explain these **TWO** stages.

(ii) Candles and tea-lights are manufactured in a wide variety of forms and colours, as shown.

Using notes and **neat freehand sketches** to communicate your ideas, design a **wall-mounted** wooden unit to display a minimum of **three** candles or tea-lights.

The candles or tea-lights should be displayed at different heights.

(iii) Describe, using notes and **neat freehand sketches**, how you propose to attach the unit to the wall.

(iv) State a specific requirement, other than being wall-mounted, that must be considered in the design of your proposed unit. Using notes and **neat freehand sketches**, show how you incorporated this requirement into your design.

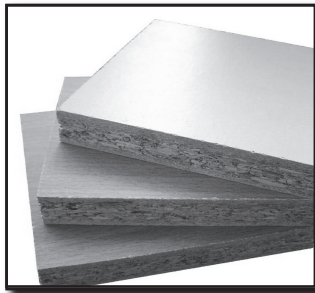


3. (i) Name the **FOUR** manufactured boards labelled **A**, **B**, **C** and **D** below.

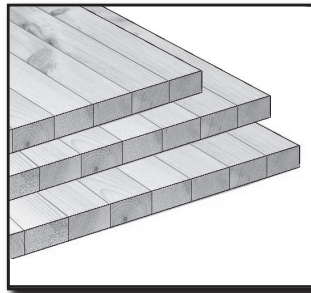
A



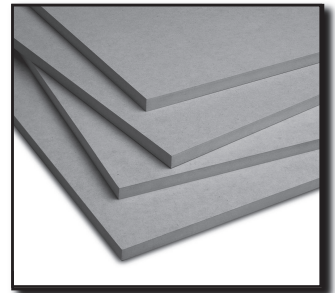
B



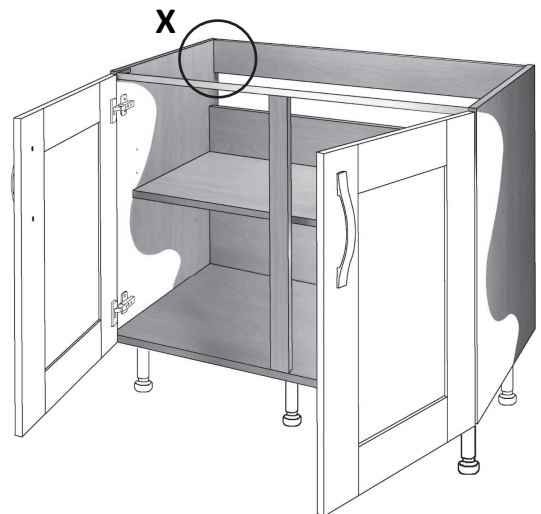
C



D

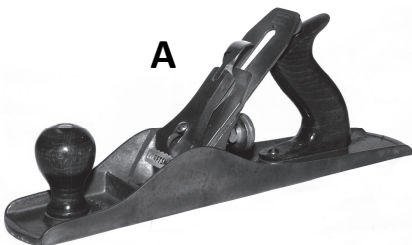


- (ii) Briefly outline **FOUR** advantages of using manufactured boards instead of solid wood.
- (iii) With the aid of notes and *neat freehand sketches* describe, in detail, the manufacture of board **A** above.
- (iv) The methods for joining manufactured boards are usually different from the traditional methods used for joining solid wood.
With the aid of notes and *neat freehand sketches* compare **TWO** such methods of joining the board labelled **B** above at a 90° angle, as shown at corner 'X' in the diagram.

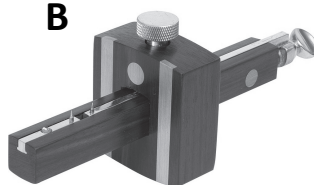


4. (i) State the correct name for **each** of the specialist tools labelled **A**, **B** and **C** below.

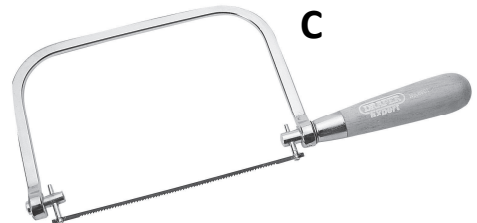
A



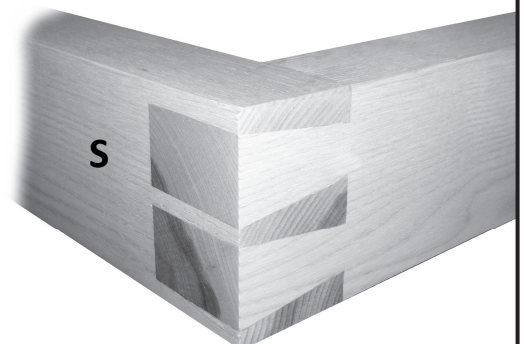
B



C



- (ii) With the aid of notes and *neat freehand sketches*, describe how the tool labelled **A** would be **set** and **used**.
- (iii) With the aid of notes and *neat freehand sketches*, describe how the tool labelled **B** would be **set** and **used**.
- (iv) The diagram shows a **Corner Dovetail Joint**.
With the aid of notes and *neat freehand sketches*, describe how to **mark out** and **remove** the waste from piece **S**.



5. Answer 5A or 5B

5A. The diagram shows a wooden rocking chair.

- (i) The rocker 'R' is laminated. With the aid of notes and **neat freehand sketches** describe, in detail, the steps involved in producing this rocker.
- (ii) The spindle 'S' is produced on a woodturning lathe. With the aid of notes and **neat freehand sketches** describe, in detail, the steps involved in making this spindle from a square block of wood.
- (iii) The spindle on the other arm of the chair is to be identical to 'S'. With the aid of notes and **neat freehand sketches** describe how this could be achieved.
- (iv) Describe, in detail, the steps involved in **preparing** the wood for, and in **applying** a varnish finish to, the chair.



OR

5B. The five boards on the right are to be glued together to form a large wooden block which is to be shaped to produce the duck carving shown below.

- (i) With the aid of notes and **neat freehand sketches**, describe, in detail, how the large block is made from the boards.
- (ii) Describe, using notes and **neat freehand sketches**, how the duck outline is transferred from a sheet of paper to the wooden block.
- (iii) Describe in detail, using notes and **neat freehand sketches**, how the duck would be carved from the wooden block.
- (iv) Describe, in detail, the steps involved in **preparing** the wood for, and in **applying**, a finish to the duck.

