

CANDIDATE NAME

CANDIDATE No						
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# The Institute Of Carpenters

## FOUNDATION CERTIFICATE

*(Formerly Pre-Vocational Certificate)*

**Wednesday May 21st 2003**

### **THEORY PAPER**

**TIME ALLOWED ONE AND A HALF HOURS**

**The following instructions should be read by ALL  
CANDIDATES before they commence work**

To obtain full marks Candidates must answer **ALL** questions  
Answers **MUST** be submitted on the question paper  
immediately below the question

Your candidate name and number **MUST** be written clearly in  
the top right hand corner of this sheet

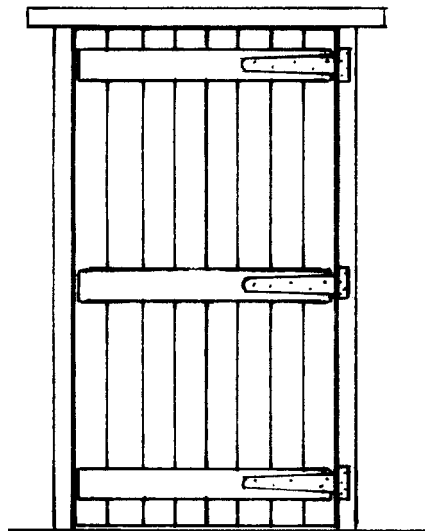
This question paper remains the property of the  
**Institute of Carpenters**  
and all USED AND UNUSED PAPERS **MUST** BE RETURNED after the examination

1. Sketch a cross-section through a tree trunk and indicate the following parts :- Heartwood; Sapwood; Growth ring; Pith; Bark.

2. State the recommended power supply when using electric portable power tools on site.

3. A ledged, braced and battened door is to be provided to a garden area. Indicate on figure 1 the position of the braces.

Fig.1



4. State the type of adhesive used to fix plastic laminate to a timber based kitchen worktop.

5. Draw a line 93 mm long, and using a compass, bisect the line into 4 equal parts.
6. Name **FOUR** machines which a wood-cutting machinist would use in a medium size workshop.

1	
2	
3	
4	

7. Add together the following :-  
 $6.792 + .996 + 45.09$  and divide your answer by 5.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sub Total \_\_\_\_\_

÷ 5 \_\_\_\_\_

\_\_\_\_\_

8. Describe **ONE** safe method of storing on site, 30 sheets of plywood, 2.440 m x 1.220 m x 9 mm.

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9. Figure 2 shows a smoothing plane cutting iron which has been prepared for planing softwood. State :-

- (A) The recommended grinding angle;  
(B) The recommended sharpening/honing angle.

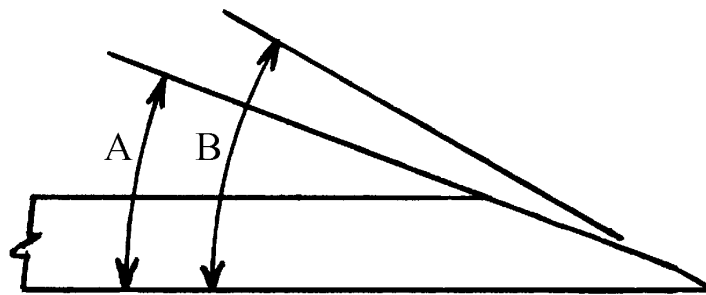


Fig.2

A		B	
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10. List **THREE** items of information which need to be known when purchasing nails.

1.
2.
3.

11. Identify which of the characteristics listed below apply to hardwood or softwood by ticking the appropriate box.

	Hardwood	Softwood
a) Deciduous	<input type="checkbox"/>	<input type="checkbox"/>
b) Cone bearing	<input type="checkbox"/>	<input type="checkbox"/>
c) Broad Leafed	<input type="checkbox"/>	<input type="checkbox"/>
d) Coniferous	<input type="checkbox"/>	<input type="checkbox"/>
e) Tracheid	<input type="checkbox"/>	<input type="checkbox"/>

12. Sketch a steel Butt Hinge and state **ONE** situation where it could be used.

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13. List the sequence of operations when changing the abrasive paper on an Orbital sander.

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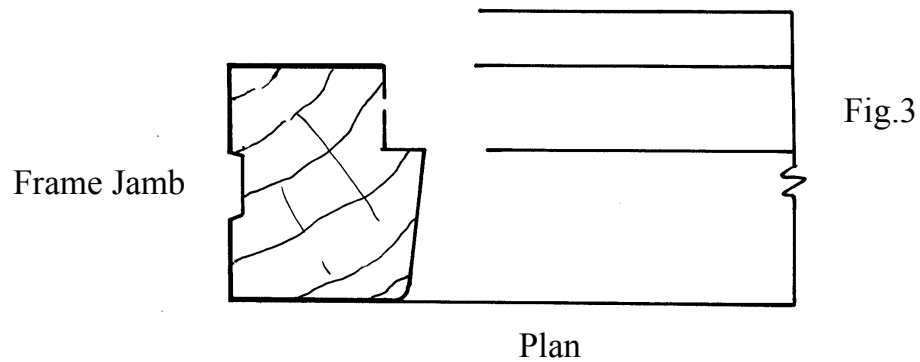
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14. State the type of joint used for a door frame **and** a door lining.

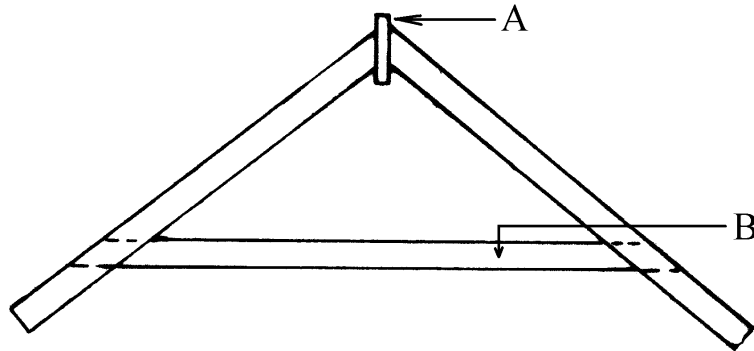
Door Frame	
Door Lining	

15. Figure 3 shows a horizontal/plan section through the frame, jamb and part of the casement sash of a **stormproof window**. Complete the detail to include the casement sash stile.



16. Sketch **TWO** methods of fixing hardwood lippings/edgings to cupboard sides which are constructed using 18 mm thick blockboard.

17. Figure 4 shows a vertical section through a couple-close roof. Name the members indicated at A and B



A.
B.

18. Using notes and sketches, indicate the correct angle a ladder must be placed before using it.

19. State **TWO** situations where a spirit level would be used.

1.

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2.

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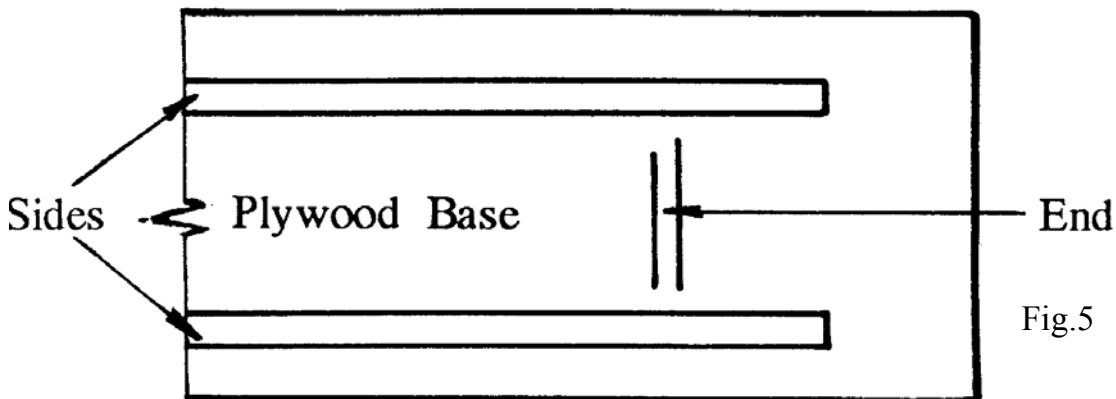


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20. Figure 5 shows the incomplete part plan of a mould box for pre-casting concrete lintels, which is to be re-used a number of times. Complete the drawing to indicate a method of securing the end to the sides prior to placing the concrete.



21. Describe the function of each of the following below in an electrical system .

Fuse	
Transformer	

22. A timber order valued at £1450.00 is subject to discount of 12.5% and then an addition of a 5% delivery charge. Complete the sum below to include the sub and final totals.

Cost of timber	£1450.00
Discount (-12.5%)	£ .
Sub Total	£ .
Delivery Charge ( + 5 % )	£ .
Total Cost of Order	£ .



23. State a reason for using each of the following below.

Architrave	
Skirting	

24. Name **ONE** saw which may be used to cut across the grain on timber and state the number of teeth (points) per 25 millimetres.

Type of saw	Points per 25 mm

25. Name the joint shown in figure 6 and list the parts indicated.

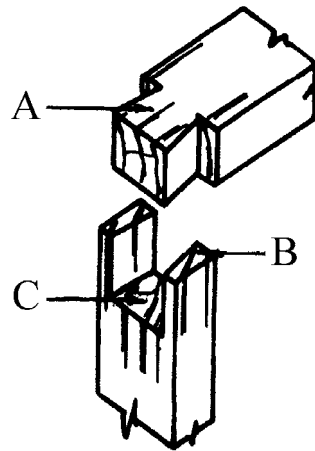


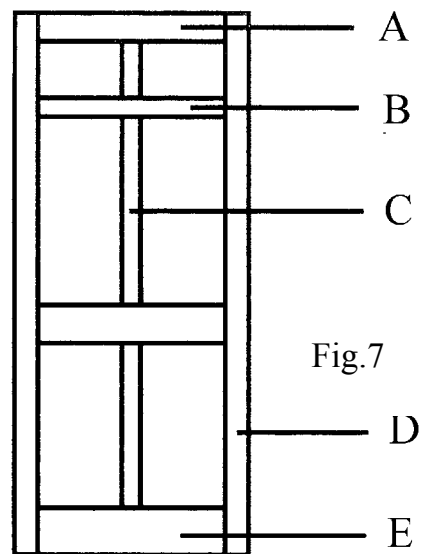
Fig.6

Name of joint
a.
b.
c.

26. State the international colour coding for the sheathing to the following wires in the cable fitted to an electrically powered portable tool.

Live	
Neutral	
Earth	

27. Figure 7 illustrates an external six panel door. Name the parts indicated.



28. Sketch, using single line elevations, the following types of window :-  
(a) Traditional casement window; (b) Splayed bay.

29. Name the components indicated at X, Y, and Z on the vertical section through part of a hollow timber ground floor shown in figure 8.

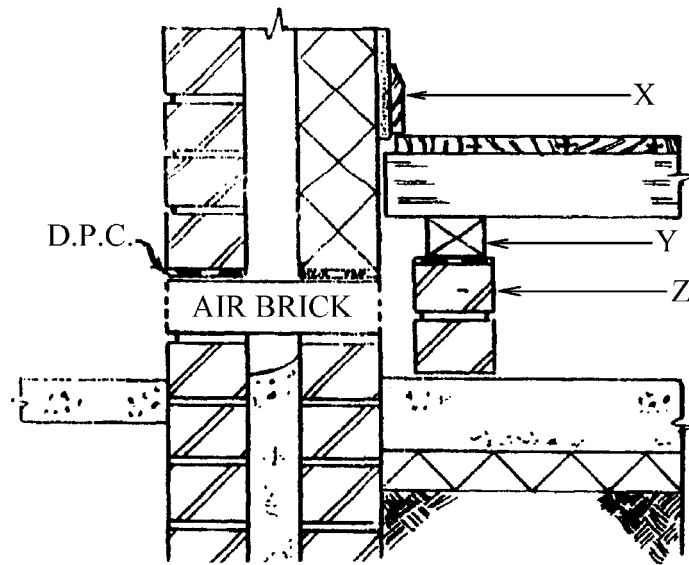


Fig.8

X.
Y.
Z.

30. Name, with reference to roof construction, the joint used between a rafter and a wallplate.

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31. Indicate on the circle at figure 9 :-  
(a) Radius; (b) Circumference; (c) Diameter; (d) Centre.

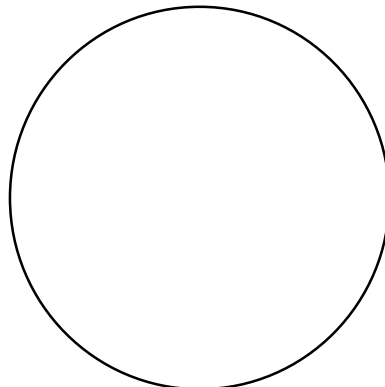


Fig.9

32. State **TWO** safety precautions to be observed when using petroleum based adhesives.

1.

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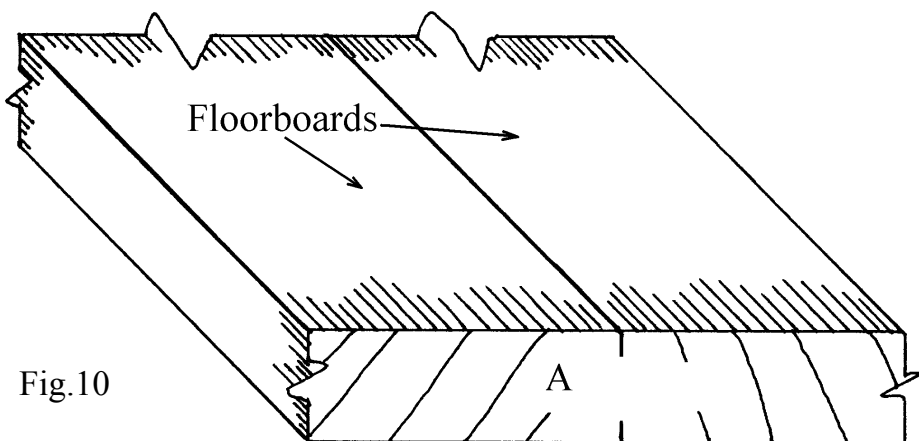
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2.

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33. Figure 10 Shows an incomplete drawing of two floor boards. Complete the drawing at "A" to show one method of jointing the boards on edge, other than a butt joint.

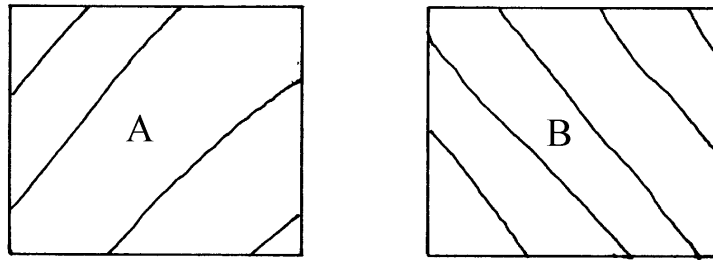


34. In relation to finding the moisture content of a sample piece of timber, complete the formula below.

$$\frac{\text{Wet weight} - \text{Dry weight}}{?} \times 100$$

35. Figures 11a and b represent full size sections of timber. Draw on :-  
 (a) A 20 x 10 rebate; (b) A 10 x 10 groove.

Fig.11

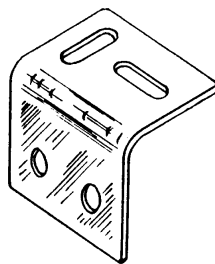


36. State **TWO** types of screwdrivers to suit different screw heads.

1.
2.

37. Name the item of ironmongery shown in figure 12 and describe a use for it.

Fig.12




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38. Figure 13 shows an external door frame made from 100 mm by 75 mm timber. Indicate on the drawing how the frame is kept square before it is finally fixed in position.

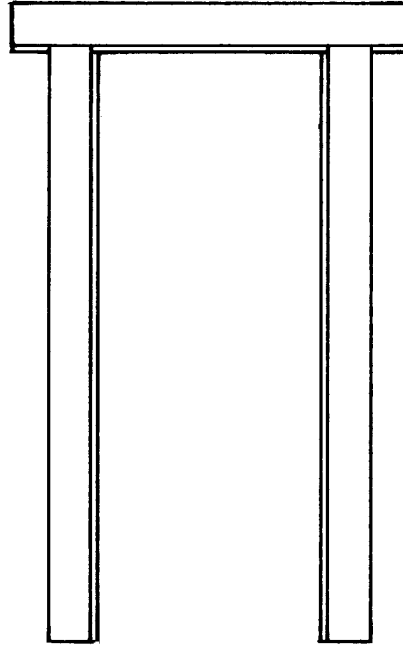


Fig.13

39. Complete the table below by ticking the appropriate box to indicate who will carry out the operations listed.

Operation	Architect	Carpenter	Shopfitter
Install a self service counter in a Supermarket.			
Machine timber to size, and/or mould/rebate it.			
Prepare working drawings.			
Design a building.			
Fix preformed trussed rafters on a roof.			

40. State the type of manufactured board shown in figure 14.

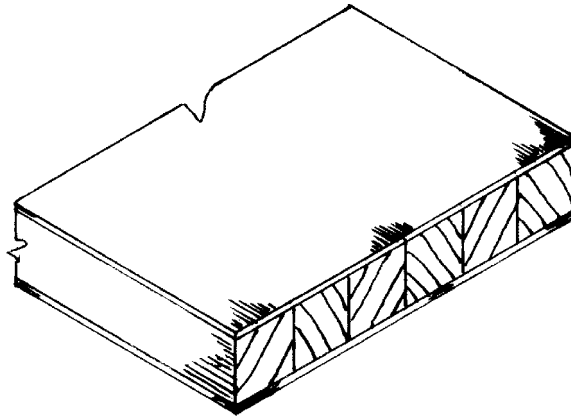


Fig.14