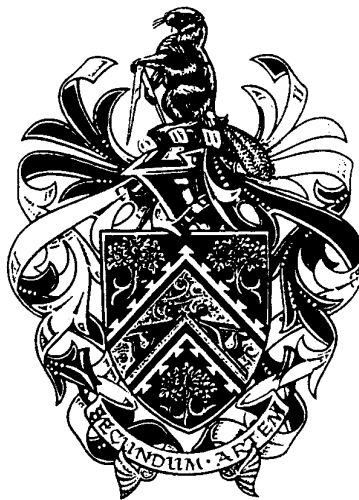


# THE INSTITUTE OF CARPENTERS



## Member Examination

16th June 1998

### Associated Vocational Technology Paper Section A

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

Candidates are advised to spend **NOT more than 1 HOUR** on this section

To obtain full marks Candidates must answer **ALL** questions

All questions carry equal marks

Answers **MUST** be submitted on the question paper immediately below the question

Your candidate 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

TO BE COMPLETED BY CANDIDATE  
BLOCK LETTERS PLEASE

<b>Name:</b>	
<b>Date of Birth:</b>	
<b>Occupation:</b>	

	<b>Region</b>		<b>Age</b>

1. State the purpose and use of **TWO** of the following : -  
(i) Bills of Quantities; (ii) Specification; (iii) Selective Tender;  
(iv) Variation Order/Architects Instructions.

1.

2.

2. Describe with the aid of sketches a method of marking out a pattern common rafter, using a steel square, or "Cowley Roof Master".

3. Name a country of origin for **FIVE** of the following timbers and state a general use for each :-

<b>Timber</b>	<b>Country</b>	<b>General Use</b>
a) Iroko		
b) Teak		
c) Lauan		
d) Hemlock		
e) Red Meranti		
f) Parana Pine		
g) Columbian Pine		

4. Explain the purpose of **FOUR** of the following when constructing timber floors :-
- (a) Creating a 50 mm space between an end joist and the brick/block wall;
  - (b) Tongue and groove jointing of flooring boards;
  - (c) Laying joists "bow" up;
  - (d) Using thicker timbers for trimmer and trimming joists;
  - (e) The regular spacing of joists;
  - (f) Forming T & G header (end) joints in hardwood flooring boards.

1.

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2.

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3.

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4.

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5. Sketch **TWO** different methods of securing a solid timber counter top to its framework, to include allowance for timber movement.

6. (a) List **FOUR** safety precautions that should be observed when using electrically powered portable hand tools on a building site.

- (b) State (i) the recommended voltage for such tools; (ii) the recommended colour coding to denote this voltage.

a. 1.

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2.

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3.

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4.

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b. i

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ii

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7. A pattern is required for use on the end of a church pew. In the given equilateral triangle Fig. 1, insert three equal circles, each touching two sides of the triangle and two circles to form the pattern.

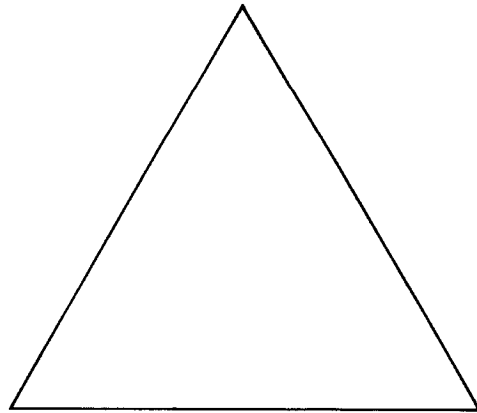


Fig.1

8. (a) List **FIVE** essential items of information required when ordering wood screws.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

(b) Illustrate by means of sketches the effective length of :-

(i) Countersunk screw; (ii) Raised head screw; (iii) Round head screw.

9. With reference to the 1974 Machine Woodworking Regulations list **FIVE** regulations relating to the environmental conditions to be observed within workshops.

1.

2.

3.

4.

5.

10. Illustrate with sketches a type of hinge used on :-  
(a) a traditional casement window; (b) a stormproof window.

11. a) Describe with the aid of sketches when using timber materials, the construction of the following :-

i) "Box" beam;

ii) "I" beam.

- b) State a suitable adhesive that may be used in their construction.

12. Sketch and state the purpose of **TWO** of the following items :-

- (a) Turning Piece;
- (b) Scarf Joint;
- (c) A Plumb rule;
- (d) Draw-bored mortice and tenon.

13. List in their correct order, the sequence of operations when fitting and fixing a mortice lock on an external door.

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14. State the function of the following in a timber framed building :-

- i) Moisture barrier;
- ii) Vapour Barrier;
- iii) Ply Sheathing.

i)

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ii)

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iii)

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15. (a) Sketch an "Aqua" or water level and state the principle on which it relies for its operation.

**Mark**

- (b) List the sequence of operations when using this level to check the horizontal alignment of the cills to two windows that are situated in adjacent walls.

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16. (a) List **FOUR** reasons for seasoning timber;  
(b) Explain the meaning of the term "Stress Grading";  
(c) List **FOUR** of the characteristics in wood which affect its stress grading.

(a) 1. 

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2. 

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3. 

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4. 

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(b) 

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(c) 1. 

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2. 

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3. 

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4. 

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17. Sketch **TWO** of the following items used in formwork construction :-
- (a) an adjustable steel prop;
  - (b) a telescopic floor centre;
  - (c) a steel column cramp & wedges;
  - (d) the components of a "left in" form tie system.

18. (a) Determine a suitable step rise for a timber domestic stair having a storey height of 2.600 metres. **Note:** Show all necessary calculations.
- (b) State the maximum pitch allowed for the stair to comply with current building regulations.

(a)

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(b)

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