THE INSTITUTE OF CARPENTERS

Member Examination

10th June 1997

Associated Vocational Technology Paper Section B

TIME ALLOWED THREE HOURS

The following instructions should be read by all CANDIDATES before they commence work.

This paper comprises **TWO** sections, candidates are advised to spend **NOT more than ONE HOUR** on section A:

Section A: Consists of 18 questions ALL of which should be attempted. Answers must be submitted on the question paper in the spaces provided.

Section B: Consists of 8 questions only **FOUR** of which are to be answered. All questions carry equal marks.

Each answer **MUST** be submitted on a separate sheet of paper, and your candidate number **MUST** be written in the top right hand corner of **EACH** answer sheet in the box provided.

Member Examination

Associated Vocational Technology (Section B)

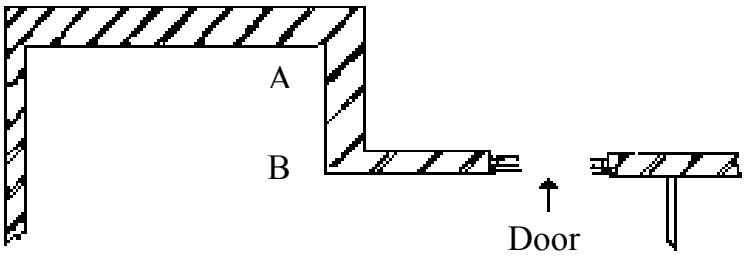
(Answer FOUR questions only)

1. Fig. 1 shows the plan of part of a committee room with a ceiling height of 3.300m. The Internal walls of the room are to be panelled to a height of 2.400m using 18mm hardwood faced blockboard sheets fixed to 22mm x 45mm wrot grounds secured to the brickwork walls. Wall faces above the panelling are to be finished with a textured plaster.

   a) Describe with the aid of sketches a method of constructing, aligning and securing the softwood grounds.

   b) Sketch and annotate vertical sections to illustrate the constructional details at the;
   i) top of the panelling;
   ii) bottom of the panelling.

   c) Sketch and annotate horizontal sections to illustrate the constructional details at the;
   i) internal corner "A";
   ii) external corner "B";
   iii) door opening;
   iv) intersection of sheets.



PART PLAN AT COMMITTEE ROOM

Fig.1

2. Woodworking machinery is to be installed into a joinery workshop to aid the production of all types of stairs.

a) Sketch a plan of the proposed workshop layout naming the machines and indicating their relationship to each other;

b) List the machines to be included and state the operations each will be required to perform in stair manufacture;

c) Explain how the proposed layout will aid efficient production and maximise output;

d) State **THREE** Statutory Notices which are required to be displayed in the completed workshop.

3. The following is an extract from a timber merchant's price list on which a trade discount of 12.5% is allowed for all items.

PRICE LIST: 50 x 200 mm Sawn Softwood unsorted 3rds. £392.00 per m^3;
50 x 200 mm Sawn Softwood 5ths £230.00 per m^3; 0.600 x 2.400 m x 18 mm thick flooring grade particle board. £6.22 per sheet.

From the prices quoted determine the total cost of the following order submitted to the merchant:

ORDER:

(a) 170 metres x 50 x 200 mm Sawn Softwood (carcassing quality).
(b) the number of sheets of flooring grade particle board required to cover the floor area shown in Fig.2

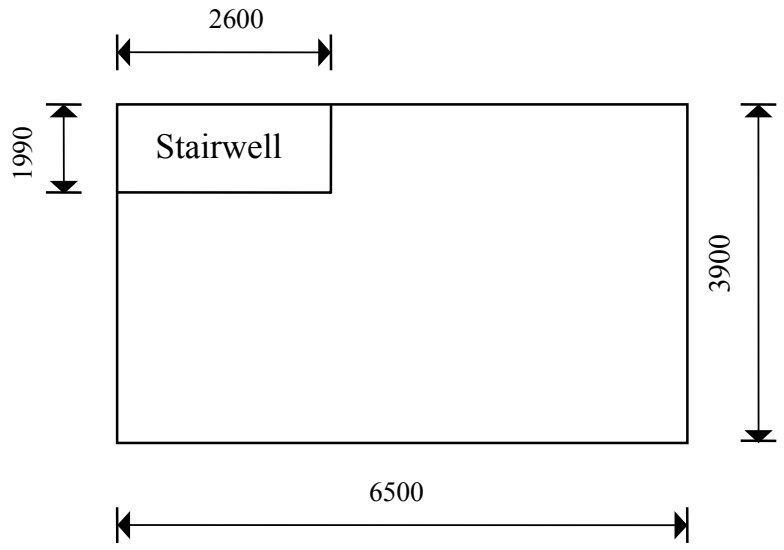


Fig.2

4. During restoration work a segmental stone arch has to be removed and rebuilt. The span is 3.000m. It has a rise of 800mm and its soffit is 450mm.

(a) To a scale of 1: 10 draw just over half an elevation and vertical section of the centre required, indicating provision for easing and striking.

(b) Name and dimension all members.

5. The door in Fig. 3 is to be constructed in ex 50mm thick timber with a 25mm thick raised, fielded and sunk panel. The door components are to have stuck ovolo mouldings on both sides.

(a) Draw a front elevation of the door to a scale of 1: 10. Name and dimension all members including showing the positions of the tenons by means of dotted lines.

(b) Draw a horizontal section at A—A to a scale of 1: 2

(c) State two methods of jointing bars at B

(d) List the machines used in their correct sequence to produce the door.

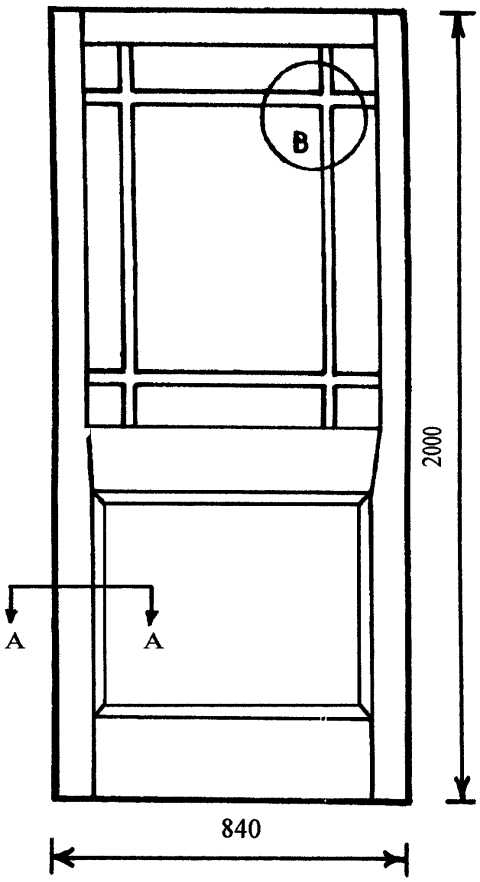


Fig.3

6. Fig. 4 shows the outline plan of an open well staircase for a domestic dwelling

(a) Draw to a scale of 1: 5 a vertical section at A-A to include newel posts, handrail, string, treads and risers. Name and dimension all members.

(b) State the formula which may be used to check the stair for compliance with current regulations.

(c) Describe with the aid of sketches :-

(i) **ONE** method of constructing a bullnose step,
(ii) A method of fixing the bullnose step to the newel post.

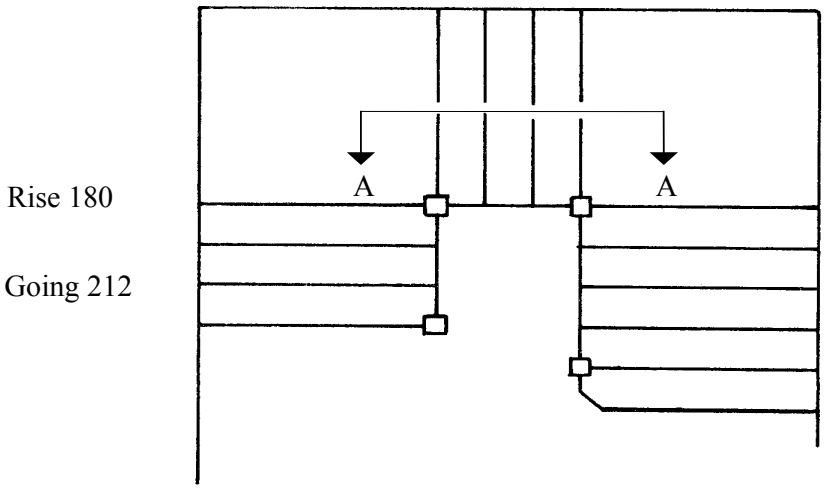


Fig.4

7. The front wall of a four-storey house is to be temporarily supported by a system of raking shores. The suspended ground floor is 275 mm above ground level and the storey height of the rooms are 2.800 m.

(a) Sketch in line diagram form, a side elevation to show the shoring required.

(b) Draw to a scale of 1: 5, an isometric projection of the detail at the head of one of the shores.

(c) Indicate with the aid of sketches a method of obtaining the position of the rakers when the joists are :-

(i) supported by the wall; (ii) parallel to the wall.

8. Fig. 5 shows the plan of a bungalow on which a hipped roof is to be constructed, the sloping surfaces to be pitched at the angles indicated.

(a) Draw to a scale of 1:100

(i) the given plan,
(ii) an elevation of the roof in the direction indicated by the arrow.

(b) Determine geometrically the following :-

(i) true length of hip rafter 'A',
(ii) true length of the valley rafter,
(iii) dihedral angle (backing angle) of the roof intersection at 'A',
(iv) true shape of the roof surface 'B'.

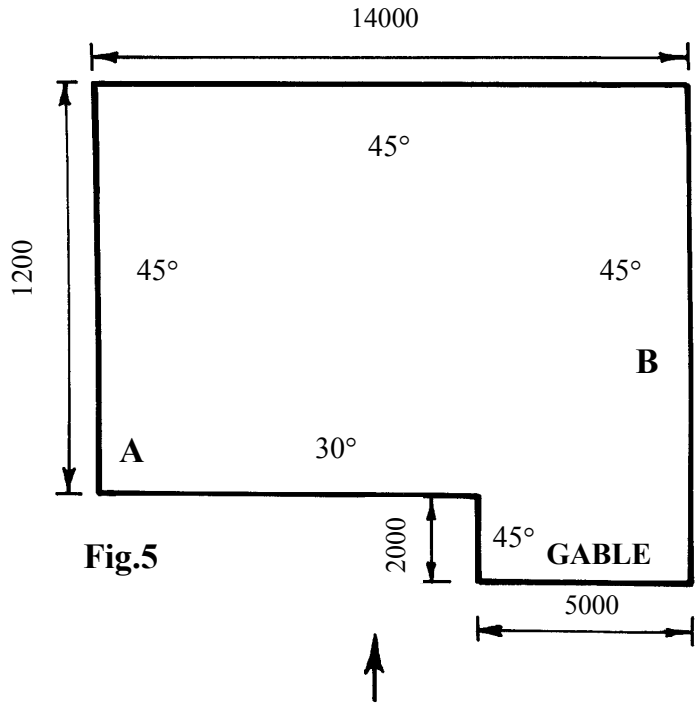


Fig.5

MEMBER Membership

Member membership of the Institute of Carpenters is available to candidates achieving success in the Institute's Member Examination, also to Teachers/Lectures/Instructors of Woodcrafts possessing a trade background.

Further information and application forms may be obtained from

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