



Leaving Certificate Examination 2005

Construction Studies

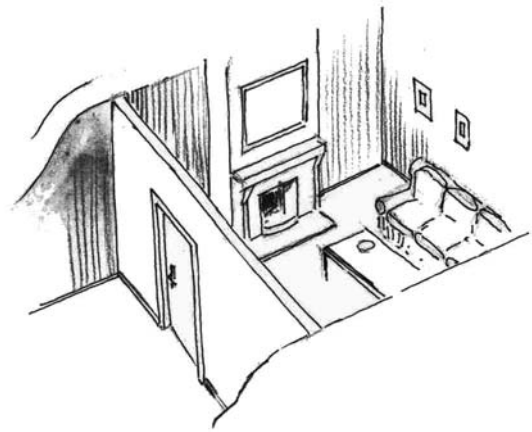
Theory - Ordinary Level

(200 Marks)

Wednesday 22 June
Afternoon, 2.00 - 4.30

- (a) Answer **Question 1** and **three** other questions.*
- (b) All questions carry equal marks.*
- (c) Answers must be written in ink.*
- (d) Drawings and sketches to be made in pencil.*
- (e) Write the number of the question distinctly before each answer.*
- (f) Neat freehand sketches to illustrate written descriptions should be made.*
- (g) The name, sizes, dimensions and other necessary particulars of each material indicated must be noted on the drawings.*

1. A flush panel door is fixed in a standard 100mm internal solid concrete block wall of a house, as shown in the sketch. The wall has a hardwall plaster finish on both sides. The house has an insulated solid concrete ground floor.



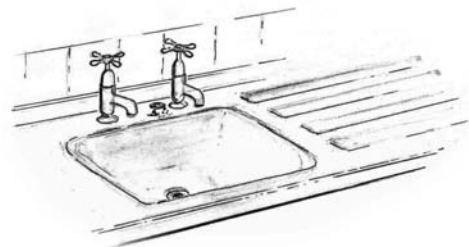
To a scale of 1:5, draw a vertical section through the foundation, floor and door. The section should show all the constructional details from the bottom of the foundation of the internal block wall to 600mm above finished floor level.

2. A non load-bearing timber stud partition with plasterboard finish separates two bedrooms on the first floor of a house.

- (a) Using notes and *neat freehand sketches*, describe the construction of the stud partition. Indicate on the sketches the names and sizes of all parts.
- (b) Describe **two** methods of providing a surface finish to the plasterboard prior to painting.
- (c) Recommend one of the finishes described at (b) and give **two** reasons for recommending this finish.

3. (a) Using a clear *labelled diagram*, sketch a system to provide **hot water** to a kitchen sink, as shown in the sketch. Include the following in your diagram:

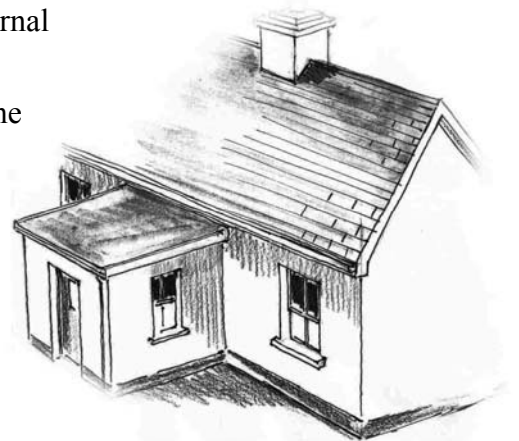
- rising main and water storage tank;
- hot water cylinder;
- all pipework for hot water;
- necessary valves.



- (b) Describe, using notes and *neat freehand sketches*, **one** design detail that prevents odours entering the kitchen from the waste discharge system of the kitchen sink.

4. A utility room extension to a dwelling house, as shown in the sketch, has a timber flat roof supported on a 300mm external concrete block wall with an insulated cavity.

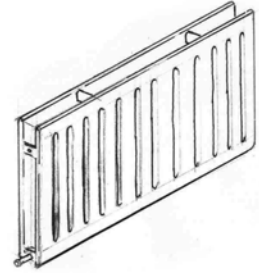
- (a) To a scale of 1:5, draw a vertical section through the eaves of the flat roof. The section should show all the constructional details from 400mm below the wall plate to the top of the roof surface. Show one metre length of roofing joist. Label all the roof components and give their sizes.
- (b) Indicate on the drawing **one** design detail that ensures adequate ventilation of the roof at eaves level.



5. (a) List **two** specific safety precautions to be observed in each of the following situations:
- Drilling a hole, 10mm in diameter, through a 6mm acrylic sheet;
 - Using a jig saw to cut a curved shape in 6mm plywood;
 - Using an electric drill out-of-doors;
 - Placing a ladder against an external wall of a house.
- (b) Give **one** reason why each safety precaution listed should be observed.

6. A two-pipe central heating system is widely used in domestic dwellings.

- (a) Draw **a neat freehand sketch** of **two** radiators in a two-pipe heating system and show clearly how both radiators are connected in the two-pipe system.
- (b) List **two** advantages of installing a two-pipe central heating system in a domestic dwelling.
- (c) The sketch shows a radiator for use in a domestic dwelling. Draw **a neat freehand sketch** of **one** of the valves to be fitted to this radiator and state clearly the function of the valve.

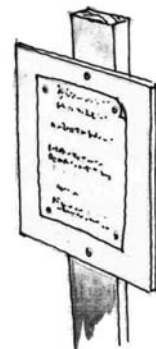


7. Explain, with the aid of notes and **neat freehand sketches**, any **five** of the following terms:

- Ridge board;
- Hip rafter;
- Draught-proof strip;
- Reinforcing mesh;
- Skirting board;
- Prestressed concrete lintel;
- Thermal bridge.

8. Planning permission is required before a dwelling house can be erected.

- (a) State **two** reasons why it is necessary to apply for planning permission to erect a dwelling house.
- (b) Explain what is meant by full planning permission.
- (c) Describe the purpose of any **three** of the following as they apply to an application for planning permission:
- Site notice;
 - Newspaper notice;
 - Site location map;
 - Site layout map;
 - Percolation test.



9. Thermal insulation is widely used in the construction of domestic dwellings.

- (a) Discuss in detail **two** advantages of using thermal insulation in the construction of a dwelling house.
- (b) List **two** materials used to provide thermal insulation.
- (c) Using notes and **neat freehand sketches**, describe a suitable location in a dwelling house for **each** insulation material listed at (b).

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