



Leaving Certificate Examination 2004

Construction Studies
Theory - Ordinary Level

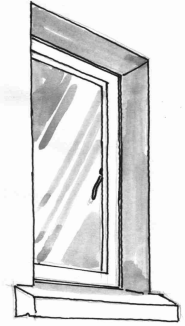
(200 Marks)

Wednesday 23 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 timber casement window is fixed in a standard 300mm external block wall with an insulated cavity, as shown in the sketch. The wall is plastered on both sides.

To a scale of 1:2 (*half full size*) draw a vertical section through the lintel, window head and sash. Show all the construction details from 350mm above to 200mm below the top of the window frame.

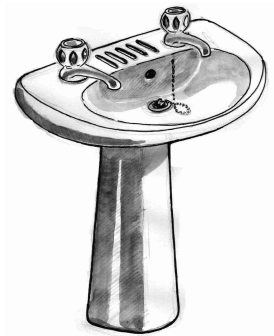


2. (a) Using notes and *neat freehand sketches* show a foundation suitable for an external wall of a single storey dwelling house. Name the foundation type and give its dimensions relative to the width of the wall.
- (b) On the sketch, show and label a design detail which would help increase the strength of the foundation.

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

- water storage tank;
- hot water cylinder;
- all pipework;
- necessary valves.

- (b) Describe, using notes and neat freehand sketches, **one** design detail that should be included to reduce heat loss from the hot water system.

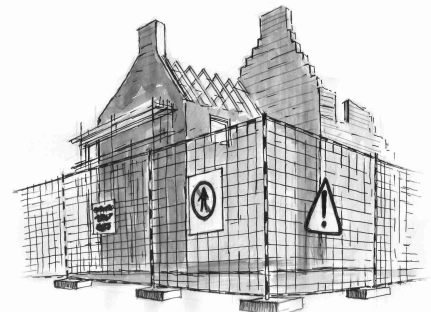


4. The roof of a dwelling house is covered with concrete roof tiles. The roof is of traditional construction and has a pitch of 30 degrees.

- (a) To a scale of 1:5, draw a section through the roof, to include the ridge board, rafters, collar tie and tiling. Show the construction details from the top of the ridge to 150mm below the collar tie. Label all the roof components and give their sizes.
- (b) Suggest a suitable preservative that may be applied to the roof members and list **two** safety precautions that should be observed when applying the preservative.

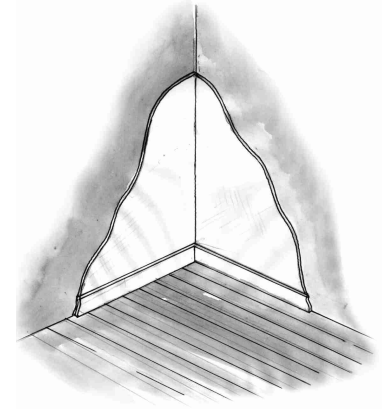
5. (a) List **two** specific safety precautions to be observed in each of the following situations:
- Placing fibreglass insulation in the attic space of a dwelling house;
 - Wiring a three-pin plug;
 - Erecting a scaffold;
 - Visiting a construction site when trenches are being excavated using machinery.

- (b) Give **one** reason why each safety precaution listed should be observed.



6. Plasterboard and insulation are to be fixed, as a dry lining, to the inner surface of an external block wall.

- (a) Using notes and *neat freehand sketches*, show **one** method of fixing the dry lining to the wall.
- (b) Give **two** reasons why it may be necessary to fix dry lining to the external walls of an old house.
- (c) Describe the preparation of the surface of the dry lined wall prior to the application of a paint finish.



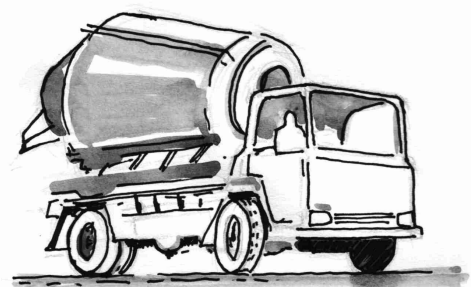
7. Explain with the aid of notes and *neat freehand sketches* any **five** of the following terms:

- Soffit;
- Sub - floor;
- Handrail;
- Newel post;
- Purlin;
- Gully trap;
- Radon barrier.

8. (a) Show, using notes and *neat freehand sketching*, the construction details of an insulated solid concrete ground floor of a domestic dwelling.
- (b) Include and label in your sketch a design detail which will prevent moisture reaching the inside of the building at floor level.
- (c) Recommend a floor covering for the concrete ground floor of a kitchen area and give **two** reasons for your choice of material.

9. (a) Explain in detail **three** of the following terms as they apply to concrete:

- Aggregates;
- Batching;
- Formwork;
- Slump test;
- Curing.



- (b) Describe **three** locations where pre-cast concrete components are used in the construction of a dwelling house.
- (c) Explain **three** advantages of using pre-cast concrete components.

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