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LEAVING CERTIFICATE EXAMINATION, 2002

CONSTRUCTION STUDIES – PART 1 (THEORY)

ORDINARY LEVEL

DAY – DATE – TIME

(200 marks are allotted to this paper)

INSTRUCTIONS

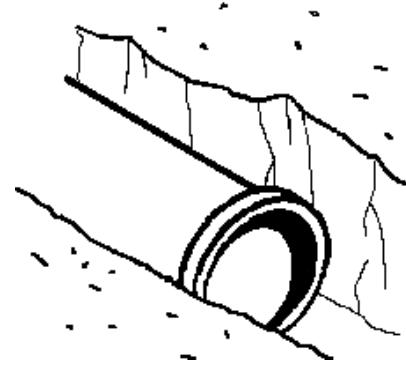
- (a) Answer **Question 1** and **three** other questions.
 - (b) Answers must be written in ink; drawings and sketches to be made in pencil.
 - (c) Write the number of the question distinctly in the margin of the paper before each answer.
 - (d) Freehand sketches or diagrams to illustrate written descriptions should be made.
 - (e) The name, sizes, dimensions and other necessary particulars of each material indicated must be noted on the drawing.
 - (f) *All questions carry equal marks.*
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1. To a scale of 1:5 draw a vertical section through a suspended timber ground floor, together with an external load bearing concrete block wall. The wall is of the standard 300 mm insulated cavity type and is plastered on both sides.

The section is to be taken from the bottom of the foundation to 300 mm above the level of the floor and should show all relevant constructional details.

2. (a) Using a **clear, labelled sketch** show the pipework and valves necessary to supply cold water to a Bath and Wash Hand Basin.
(b) Describe using *notes and neat freehand sketches*, a design detail of a precaution that could be taken to protect copper pipework from the effects of severe frost.
3. Describe using *notes and neat freehand sketches* how to set-out and lay a drain, as shown, from a domestic dwelling to a Septic Tank, under **each** of the following headings:

- (i) Excavation of Trench;
- (ii) Depth & Width of Trench;
- (iii) Safety;
- (iv) Slope or Gradient;
- (v) Pipework;
- (vi) Backfilling.

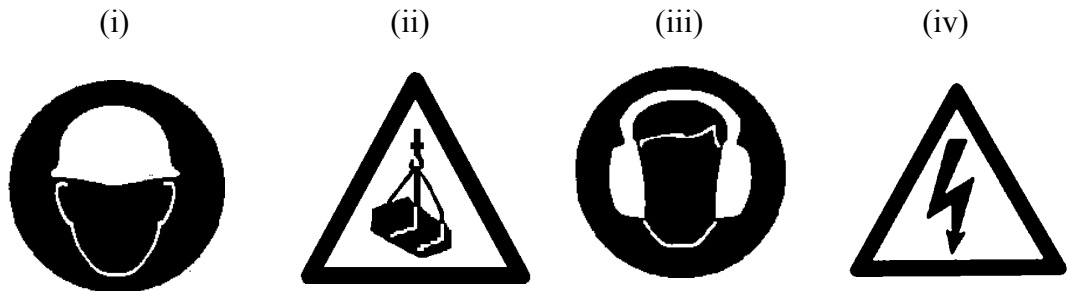


4. (a) To a scale of 1:10 draw a vertical section through a concrete window cill in a standard 300 mm insulated, cavity, block wall.
(b) Include in your drawing design details, which will help prevent the following:-
 - (i) water from reaching the wall immediately under the cill;
 - (ii) dampness from reaching the inner leaf of the cavity wall.

5. (a) In relation to concrete work explain in detail **any three** of the following terms:
- (i) Coarse Aggregate;
 - (ii) Fine Aggregate;
 - (iii) Water / Cement Ratio;
 - (iv) Slump Test;
 - (v) Reinforced Concrete.
- (b) Give **two** examples of where reinforced concrete may be in the construction of a domestic dwelling.

Write a short note on **each**.

6. (a) The following are four safety signs that are commonly used in the construction industry.



State clearly what is meant by **each** of the above.

Two of the above signs are circular in shape and two are triangular. Briefly describe the meaning of these different shapes.

- (b) Using notes and *neat freehand sketches* describe **three** safety precautions that should be observed when using scaffolding on a construction site and briefly explain the reason for **each**.

7. Explain with the aid of notes and *neat freehand sketches* any **five** of the following as they relate to construction:-

- (i) Upper Floor Joist;
- (ii) Solid Strutting or Bridging;
- (iii) Profile;
- (iv) Damp-Proof Course (D.P.C.);
- (v) Purlin;
- (vi) Tongued and Grooved Flooring Boards;
- (vii) Plasterboard.

8. (a) Explain in detail the sequence of operations required, for preparing and painting, new wood for an external use such as the fascia board shown in the diagram.



- (b) List and explain **two** safety precautions that should be observed when applying preservatives to wood.
9. (a) Using *notes and neat freehand sketches* show the location of thermal insulation in **each** of the following:-
- (i) a pitched roof;
 - (ii) an external cavity wall.
- (b) State the type of insulation, and the thickness, that should be used in **each** of the above.