

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF ARCHITECTURE AND QUANTITY SURVEYING

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE

PART III FIRST SEMESTER EXAMINATIONS – DECEMBER 2002
AAR 3108 BUILDING CONSTRUCTION III

Instructions

Time: 3 Hours

Answer ALL questions
All drawings to be freehand annotated sketches

QUESTION 1

- a) Give three common types of soil which can be encountered on site. [3]
- b) Using detailed sketches illustrate a typical foundation for a larger building on each type of soil mentioned above. [15]
- c) Provide a typical construction plan for at least one type of foundation mentioned above. Also indicate the type of equipment that will be used. [2]

QUESTION 2

- a) What is the purpose of the following in building construction?
 - i) Scaffolding
 - ii) Under-pinning [4]
- b) Various concrete works require different types of form-work. Use a clearly labelled sketch drawing showing the form-work used for casting or erecting concrete floors and beams. [6]
- c) A wide door has to be provided in the main wall of a shop. Explain the method by which you would carry out the work, indicating clearly the shoring that you would provide to support the roof on either side of the wall. [10]

QUESTION 3

- a) Why are lead sheets not laid in cement mortar as a damp-proof course? [2]
- b) Give a brief explanation of how surface treatment can prevent dampness in buildings. [3]
- c) Sketch damp proofing treatment for basement level of a building. [5]
- d) Provide a neat proportioned section through a one brick wall from the lintel of a lower window up to the coping of a r.c. terrace over. Illustrate how the penetration of moisture is prevented. [10]

QUESTION 4

- a) According to the Model Building By-Laws, what is the minimum permissible area of required daylight opening in a room for the following types of spaces?
- i) A kitchen in a dwelling
 - ii) A residential room
 - iii) A store room in an industrial building
- [6]
- b) What is the minimum clear floor to ceiling height required for the following?
- i) habitable room
 - ii) Shops
 - iii) Offices
 - iv) Factories
- [8]
- b) According to the Model Building By-Laws, outline at least five requirements for a staircase design. What is the headroom at every point of any stairway forming an exit-way? [6]

QUESTION 5

- a) What is the purpose of lining a brick wall in stone? [1]
Provide a neat sketch to illustrate your answer. [5]
- b) State under which circumstances would you recommend the following:
- i) a pitched roof
 - ii) a flat roof
- [4]
- c) Provide a detail of the connections necessary at the eaves of steel roof trusses. [10]