

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

**DEPARTMENT OF ARCHITECTURE**  
**BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE**

**PART III SECOND SEMESTER EXAMINATIONS – JULY 2003**  
**AAR 3203 BUILDING CONSTRUCTION II**

**Instructions**

**Time : 3 Hours**

**QUESTION 1**

Draw a typical section of a multi-storey building (seven stories) with a basement and explain with the aid of illustrations the following:

- (a) tanking (methods) used
- (b) wall cladding used
- (c) flooring system used
- (d) type of ceiling used
- (e) type of roofing used and show how you ensure proper rainwater drainage.

[25]

**QUESTION 2**

A client has approached the Department of Architecture at NUST to design an industrial warehouse of medium span on foundations in material with a poor bearing capacity. The Department has recommended that the structure be made of steel portal frames on 12.00 m x 6.00 m grid comprising of 6 bays.

- a) Explain to the client why the Department has recommended this. [3]
- b) Design the portal frame showing the layout plan and a detailed section of the main components of the frame. [12]

**QUESTION 3**

- (a) What factors are critical in the determination of structural fire protection in multiple – storey buildings? [5]
- (b) Sketch a detail of how the following building materials can be used in structural fire protection:
  - (i) gypsum plasterboard
  - (ii) fibre reinforced portland cement insulating board.
  - (iii) fibre reinforced calcium silicate insulating boards. [10]
- (c) Which building codes are generally applicable to the construction of commercial buildings? [5]

**QUESTION 4**

- (a) Which are the main building codes generally applicable to residential building? [4]
- (b) In the design/detailing of town houses: how would you determine the following elements: (Indicate the relevant building codes from which the data is obtained)
  - (i) maximum permissible height of the block of town houses within the locality [4]

- (ii) parking spaces required per town house unit. [2]
- (iii) distances to fire exit ways: height, width and light levels of exit ways. [6]
- (c) A hair saloon is incorporated into the town houses complex: how would you determine the changing room sizes: the finishes within the saloon and the type, height of wash hand/head basins as stipulated by the relevant by-laws? [4]

**QUESTION 5**

- (a) Produce a typical construction and equipment program for a simple four – room cottage at Selbourne Park. [10]
- (b) Use sketches to illustrate three (3) typical demolition techniques used for demolishing high –rise buildings. [10]