

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

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE

PART II FIRST SEMESTER EXAMINATIONS – JANUARY 2004
AAR 2102 – BUILDING CONSTRUCTION I

Instructions

Time : 3 Hours

Answer Question 1 and any three others of your choice.
Use clearly annotated drawings to illustrate your answers.

QUESTION 1 (Compulsory)

Fig 1. Illustrates the floor plan of a two storey residential building at Selbourne Park along Gwanda Road. The development is at the level required for casting the insitu r. c. upper floor.

- a) Draw a section through the building as shown, to illustrate the construction details of the solid concrete ground floor and the brick walls.
- b) Describe, an appropriate type of formwork and the process for casting the r. c. upper floor. [34]

QUESTION 2

- a) Define the load bearing capacity (LBC) of a sub soil.
- b) Describe the Test Boring method for the determination of LBC.
- c) Faced with a situation in which boring equipment and laboratory facilities are not available, the structural engineer for a two storey rural community secondary school is obliged to use the Elementary Soil Test method to determine the LBC of sub soil. Give a detailed description of this method. [22]

QUESTION 3

- a) Using the criteria of function and compressive strength give a classification of clay bricks for building construction.
- b) Describe the Flemish and English Bonds stating clearly their relative advantages in wall construction. [22]

QUESTION 4

- a) The specific roles of the Quantity Surveyor in a building construction project vary depending on the stage of the project.
- b) Describe clearly the activities in the contract stage for a medium sized building development with emphasis on the roles of the Quantity Surveyor.
- c) Who are the specialist engineers and what are their roles in a building construction project? [22]

QUESTION 5

- a) Define the pile foundation and explain in what circumstances pile foundation may be recommended for a low-rise building project.
- b) The site for a single storey community hall is predominantly of the black cotton sub-soil. Recommend and describe an appropriate foundation type for the project.

[22]