

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

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE

PART III END OF FIRST SEMESTER EXAMINATIONS – DECEMBER 2005
AAR 3108 – BUILDING CONSTRUCTION III

Instructions

Duration: 4 Hours

Answer all three(3) questions.

Question 1 is to be answered on a single A1 sheet separately

Marks will be awarded to neatly presented work.

You can draw either in pencil or technical pen.

Number all your sheets.

Do not write your name on any sheet.

QUESTION 1

Draw a scaled typical section of a six (6) storeyed office R.C.C framed block which is fifteen (15m) metres wide with a centrally located passageway of one and half (1.5) metres width. The block has a basement parking facility on pile foundations. Design and show detailed drawings of the following

- a) A symmetrical bowstring steel framed trusses for the roof against a parapet walls.
- b) External tanking of the basement in mastic asphalt

[50]

QUESTION 2

Draw neat and clearly annotated typical sketch details of the following:

- a) Pit underpinning
- b) Cantilevered scaffolding
- c) Formwork details for beam and slab construction.

[25]

QUESTION 3

To avoid the use of closely spaced internal columns to support steel roof trusses it is usual with multi-bay roofs to use either valley beams or lattice girders inside the depth of the trusses to reduce the number of internal columns that would otherwise obstruct the working floor area. Illustrate with schematic (line) drawings (scale 1:200) how you can roof an industrial shed measuring 36m by 24m using the following to forms:

- a) **Two bay symmetrical pitch lattice roof and columns with valley beams**
- b) **Two bay symmetrical lattice cantilevered (umbrella) roof.**

Compare the two forms, stating the advantages and disadvantages of each of each.

[25]