



**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**FACULTY OF THE BUILT ENVIRONMENT**

**DEPARTMENT OF ARCHITECTURE**

**BUILDING CONSTRUCTION III**

**AAR 3108**

**Supplementary Examination Paper**

**July 2016**

This examination paper consists of 3 pages

**Time Allowed: 4 hours**

**Total Marks: 100**

**Special Requirements: A1 DRAWING BOARDS, A1 PLAIN SHEETS, MASKING TAPE.**

**Examiner's Name: I. Mhandu**

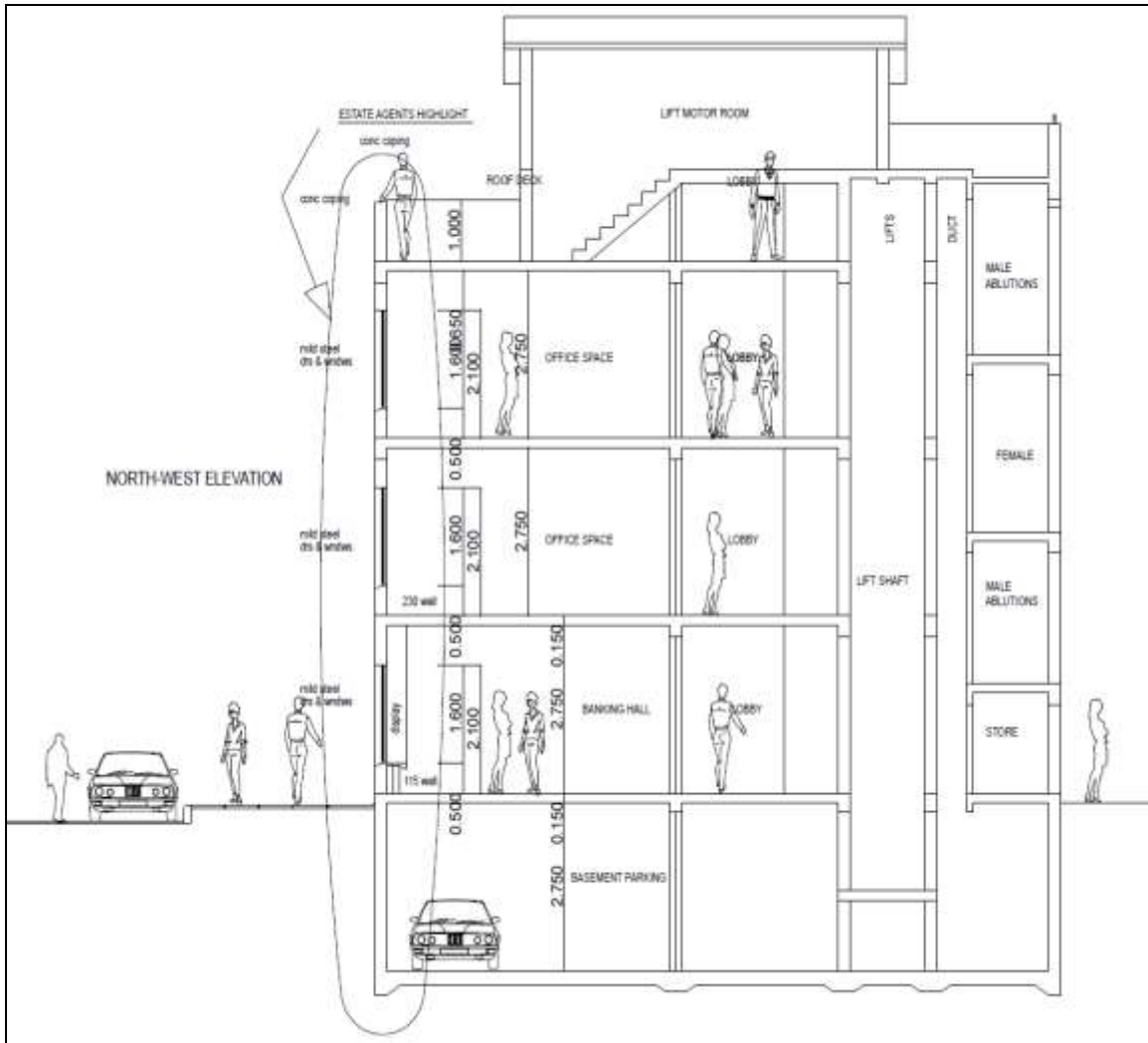
**INSTRUCTIONS**

1. Answer ALL questions
2. Answer question 1 on an A1 sheet/s of paper

**MARK ALLOCATION**

<b>QUESTION</b>	<b>MARKS</b>
1.	40
2.	20
3.	20
4.	20
<b>TOTAL</b>	<b>100</b>

## Question 1



**Figure 1. Schematic section of an office building**

A client who wants to invest his money in constructing an office building has approached you with a schematic section (Figure 1) which was done by another Architect who has now since referred the client to you. The Architect who instructed the client to approach you seems to have mentioned the words dpm, dpc and tanking hence the client now wants an insight into these words.

- (a) Draw using the scale 1:50 the part section highlighted showing the locations of the waterproofing. (20)
- (b) Reproduce five relevant blown-up details using scale 1:10 or 1:5. (20)

### **Question Two**

- a) Define Demolition? (2)
- b) What do you consider in determining the demolition method to employ. (8)
- c) Explain the favourable conditions under which the demolition method of stripping out can be used. (4)
- d) Use sketches to explain temporary support with maintenance jacking (6)

### **Question 3**

- a) What is a deep foundation system and give an example? (4)
- b) Explain situations that require the use of deep foundations systems (8)
- c) Using sketches explain the difference between displacement and replacement piles. (8)

### **Question 4**

- a) What factors determines the choice of concrete formwork? (6)
- b) Which other materials can be used for concrete formwork other than steel and timber? (3)
- c) Summarize the key characteristics of one of the materials you stated in the question above (*question 4b*) (3)
- d) Explain the causes of formwork failure in construction. (8)