



**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**FACULTY OF THE BUILT ENVIRONMENT**

**DEPARTMENT OF ARCHITECTURE**

**BUILDING CONSTRUCTION IV**

**AAR 3208**

**Main Examination Paper**

**May 2015**

This examination paper consists of 4 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 below shows typical section of a multi-storied RC framed building with supporting columns positioned at 6000mm c/c.

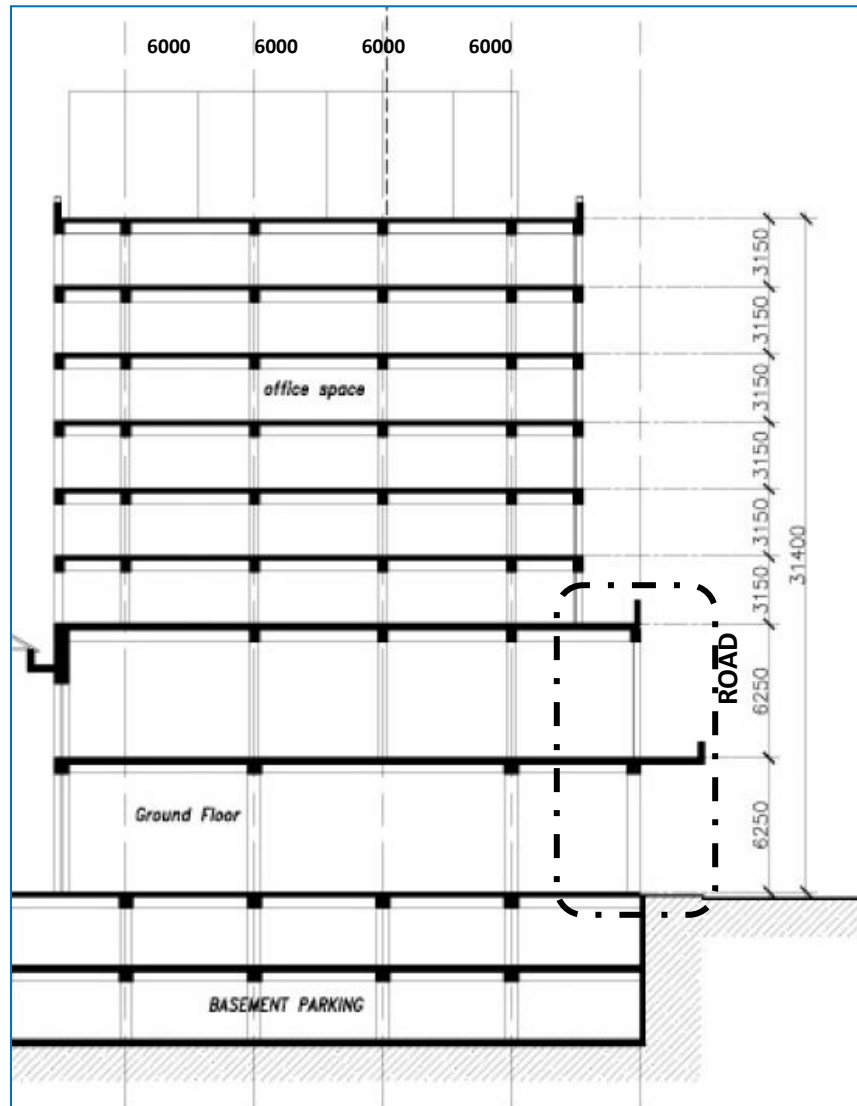


Figure 1. Schematic section of an office building

(a) Redraw the section of the highlighted area using a scale of 1:20 taking note that

(i) the balconies of the first and second floors have steel balustrading.

(ii) the building has a glazing system made up of Pressured aluminium frames

(iii) the building has anodised aluminium horizontal shading devices.

(20)

(b) Provide details of the following using a scale of 1:5

(i) A concrete slab supported with open-web joists which is being used in the building clearly showing all the components (6)

(ii) An internal aluminium framed sound proof partition used in the building. (8)

(iii) The stone cladding being used at the back of the building (6)

**(40 marks)**

## **Question 2**

**Draw neat clearly annotated sketches of the following;**

a) Any three drainage systems. (3)

b) The following classifications of sub-surface drains.

i) Aggregate Drains

ii) Pipe Drains (8)

c) A typical section of a geo-textile (geo- fabric) drain behind a retaining wall. (5)

d) A typical section of insitu concrete box drainage channel with metal grill. (4)

### **Question 3**

- a) Define a pavement and explain the three main purposes it serves? (5)

*Use well labelled sketches to explain*

- b) The two types of pavements (8)

- c) The purpose of the following in pavement construction.

(i) Longitudinal joint

(ii) Expansion Joint (4)

- (d) Explain the causes of pavement deterioration (3)

**[20]**

### **Question 4**

- (a) Explain the following terms in ceiling installations.

(i) Plenum space

(ii) Interstitial space (6)

- (b) Using sketches explain the following in suspended acoustical ceilings

(i) Exposed grid suspension systems.

(ii) Recessed grid suspension systems.

(iii) Concealed grid suspension systems. (9)

- (c) What are the purposes of metal or plastic-tipped divider strips in terrazzo finishes

(5)

**[20]**