NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

BUILDING CONSTRUCTION V

AAR 5102

Examination Paper

December 2016

This examination paper consists of 3 pages

Time Allowed: **4 hours**

Total Marks: **100**

Special Requirements: Computer installed with ArchiCAD SOFTWARE

Examiner's Name: Arch. R. Musekwa

INSTRUCTIONS

1. Answer all Questions
2. Answer Question 1 using CAD (Computer software)

MARK ALLOCATION

QUESTION	MARKS
1.	**40**
2.	**25**
3.	**25**
4.	**25**
5.	**25**
6.	**25**
TOTAL	**100**

QUESTION 1

State the general functional requirements of external walling systems and recommend three sustainable external walling systems for construction of multi-storey buildings under the climatic conditions in Bulawayo. (5)

Design the above mentioned multi-storey office building using your preferred external walling system.

Drawings of the following should be drawn at a scale of 1:1 using ArchiCAD and then placed on an A1 layout with a proper title block which should be printed to pdf in black and white or grayscale.

a. A structural plan using scale 1:25 (10)

b. Two different elevations at a scale of 1:25 (5)

c. Five relevant details of the joints using appropriate scales clearly stating the materials and their specifications. (20)

QUESTION 2

a) Portal frames operate on some unique constructional theory. Comment. (5)

b) Name any five types of Portal Frames used in contemporary Architecture.

With the aid of simple sketches, analyze one of them in terms of foundations and fixings, typical details and constructional advantages. (20)

QUESTION 3

a) Distinguish between building types and building construction systems. Give three examples of each. (5)

b) With reference to any two specific building types, concisely outline the unique areas of applications of timber portal frames with the aid of simple sketches. (20)

QUESTION 4

a) By aid of sketch designs, explain application for a rain screen cladding. (15)

b) Outline three (3) requirements for materials used for sealing construction joints. (10)

