



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF LANDSCAPE ARCHITECTURE AND URBAN DESIGN

BSC PROPERTY DEVELOPMENT AND ESTATE MANAGEMENT

BUILDING SERVICESII

AAR 3203

Supplementary Examination Paper

December 2016

This examination paper consists of 2 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Mr RMuvungani

INSTRUCTIONS

1. Answer all questions
2. Each question carries 25 marks

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25

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Question 1

- a) Distinguish between soil and waste water. (5)
- b) Differentiate with sketches a Wash-down WC from a Double seal siphonic WC pan. (20)

[25]

Question 2

- a) Differentiate ventilation from air conditioning. (5)
- b) Explain how sound attenuation is achieved in air conditioning ducts. (10)
- c) Discuss the benefits of air conditioning a building. (10)

[25]

Question 3

Calculate the diameter and gradient required for an area of footpaths and roadways of a building development scheme of 4000m² total area using the following data:

- Rainfall intensity = 75mm/hr
- Half full bore discharge
- Velocity of flow = 0.45m/s
- Impermeability factor = 0.80m/s

[25]

Question 4

Explain the operation system of any 3 types of fans and 2 filters that are normally used on mechanical ventilation and/or air conditioning systems. [25]