



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

BUILDING SERVICES II

AAR 3203

Examination Paper

May 2016

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Muvungani R

INSTRUCTIONS

1. Answer any **four** questions
2. Use of calculators is permissible

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
TOTAL	100

Question One

Discuss problems associated with the use of refuse chutes in domestic and commercial buildings, and the counter solutions to those problems, which have to be considered during chute designing

Question Two

- a) Outline factors that are considered in the choice of the most appropriate sewage treatment plant for any given community [5]
- b) Describe the sewage treatment process suitable for a city comparable to Bulawayo / Harare [20]

Question Three

- a) Explain the purpose of anti-siphonage pipes in waste water drainage [5]
- b) Describe the measures that are taken by designers in a bid to come up with excellent and durable underground drains [5]
- c) Compare and contrast the use of a one pipe to a single stack discharge system [15]

Question Four

- a) Describe the importance of HVAC systems to architectural designs [10]
- b) Discuss the parameters that are considered in the selection of the most appropriate HVAC system [15]

Question Five

- a) Given below is information that was gathered pertaining to a particular building in town.

Lighting flash density (Ng) = 4; Relative structural location (C1) = 2

Rectangular structure L = 50mx40mx54m

Lightning strike frequency (Nd) = 3.93

C2=3, C3=3, C4=1, and C5=5

Assess the need to protect the building from lightning strikes using the information furnished above [10]

- b) Describe the primary components of a lightning protection system [15]