



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY SPECIAL / SUPPLEMENTARY  
EXAMINATIONS  
2021 / 2022 ACADEMIC YEAR**

**FOURTH YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE  
IN  
CIVIL AND STRUCTURAL ENGINEERING**

**COURSE CODE: CSE 562  
COURSE TITLE: BUILDING SERVICES ENGINEERING**

**DATE: 6<sup>TH</sup> OCTOBER 2022                      TIME: 12 – 2 P.M**

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**INSTRUCTIONS:**

1. This paper contains FOUR Questions
2. Answer question ONE and any other TWO
3. Marks for each question are indicated in the parenthesis.
4. It is in the best interest of the candidate to write legibly
5. Examination duration is 2 Hours

MMST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

**QUESTION 1 (30 marks)**

- a) Discuss the process of landscape design and subsequent construction for an educational facility with clear and elaborate specifications on the various spaces, their sizes, landscape elements and materials to be used **(30 marks)**

**QUESTION 2 (20 marks)**

- a) Describe how any **Two (2)** environmental factors can influence the design of buildings with reference to building services according human reaction **(4 marks)**.
- b) Describe **Five (5)** factors that affect thermal comfort of occupants in buildings **(10 marks)**.
- c) With aid of diagrams for different sound attenuations, explain **Three (3)** construction techniques for walls in acoustic planning of buildings. **(6 marks)**.

**QUESTION 3 (20 marks)**

- a) Explain **Four (4)** proactive approaches that can be employed to improve the functioning of various building services **(8 marks)**.
- b) Explain any **four (4)** building components that can provide solar control and shading **(4 marks)**.
- c) Describe Heating, Ventilation and Air Conditioning (HVAC) in buildings with respect to **Four (4)** possible system problems and how to fix them **(8 marks)**.

**QUESTION 4 (20 marks)**

- a) Explain using **Five (5)** appropriate examples and diagrams where possible how you would use the principles of source, path, and receiver noise control in managing different sources of noise within Masinde Muliro University. **(10 mks)**.
- b) Explain **Four (4)** ways of reducing ecological footprints with reference to HVAC in commercial buildings **(8 mks)**
- c) Describe the term “**low shading coefficient**” in reference to glazing in buildings **(2 mks)**