



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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR**

**FIFTH YEAR SEMESTER TWO
SPECIAL AND SUPPLEMENTARY EXAMINATIONS**

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

COURSE CODE: CSE 562 / TEB 462

COURSE TITLE: BUILDING SERVICES ENGINEERING

DATE: FRIDAY 22ND JANUARY 2021 TIME: 8.00 – 10.00 AM

INSTRUCTIONS:

1. This paper contains FIVE questions
2. QUESTION ONE IS COMPULSORY
3. Attempt any other Three questions
4. Marks for each question are indicated in the parenthesis.

Examination duration is **2 Hours**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over.

QUESTIONS: Answer question 1 and any other THREE questions.**Question 1**

- (a) With the aid of suitable illustrations differentiate between direct and indirect systems of cold water supply in a domestic setup. State the advantages of each. (10 marks)
- (b) Discuss FIVE types of portable fire extinguishers installed in buildings, mentioning their specific applications. (10 marks)
- (c) How does drinking water become polluted by back-siphonage and what are the prevention methods used? (5 marks)

Question 2

- (a) Differentiate between a dry riser and wet riser. Sketch a wet riser installation supplied from a break cistern. (6 marks)
- (b) Sketch and explain the operations of the following types of flushing cisterns:
(i) Piston type (ii) Bell type (iii) Trough type (9 marks)

Question 3

- (a) State the conditions necessary for moisture related problems to occur in a building. (5 marks)
- (b) Discuss some methods used for regulating noise inside a building. (5 marks)
- (c) Explain the term "Sick building syndrome". How can it be prevented inside a building? (5 marks)

Question 4

- (a) Outline FIVE major reasons for ventilation of buildings. (5 marks)
- (b) A large public theatre in Kakamega County measuring 30m length by 20m width with a height of 10m requires mechanical ventilation. The ceiling height is at 9m. Determine the airflow rates for the system given the following: Occupancy = 1000 seats, Supply air ventilation rate = 10 air changes per hour and Outdoor air recommended minimum rate (non-smoking) = 8 l/s/p (10marks)

Question 5

- (a) Using a suitable sketch, illustrate the heat exchange processes between a building and the external environment. (5 marks)
- (b) Define the term Energy Audit. Describe the typical energy improvement measures you would recommend when carrying out an energy audit on a commercial building. (10 marks)
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