# MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

## UNIVERSITY EXAMINATIONS 2022/2023 ACADEMIC YEAR

## SECOND YEAR SECOND SEMESTER MAIN EXAMINATIONS

## FOR THE DEGREE OF BACHELOR OF TECHNOLOGY EDUCATION (BUILDING AND CIVIL TECHNOLOGY)

**COURSE CODE:** TEB 212

**COURSE TITLE:** THEORY OF STRUCTURES II

**DATE:** 18TH APRIL 2023 **TIME:** 3-5 P.M

**INSTRUCTIONS:**

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

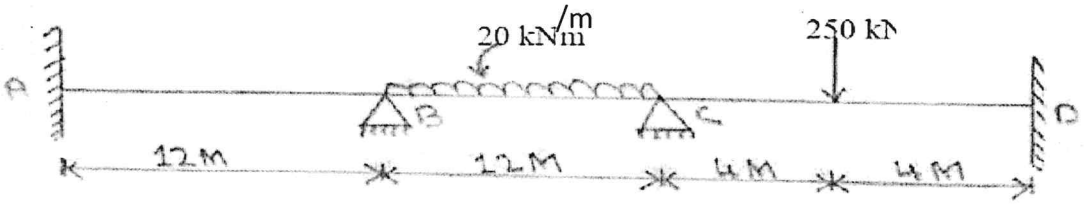
Examination duration is **2 Hours**

MMUST observes ZERO tolerance to examination cheating

## Question ONE (30 marks)

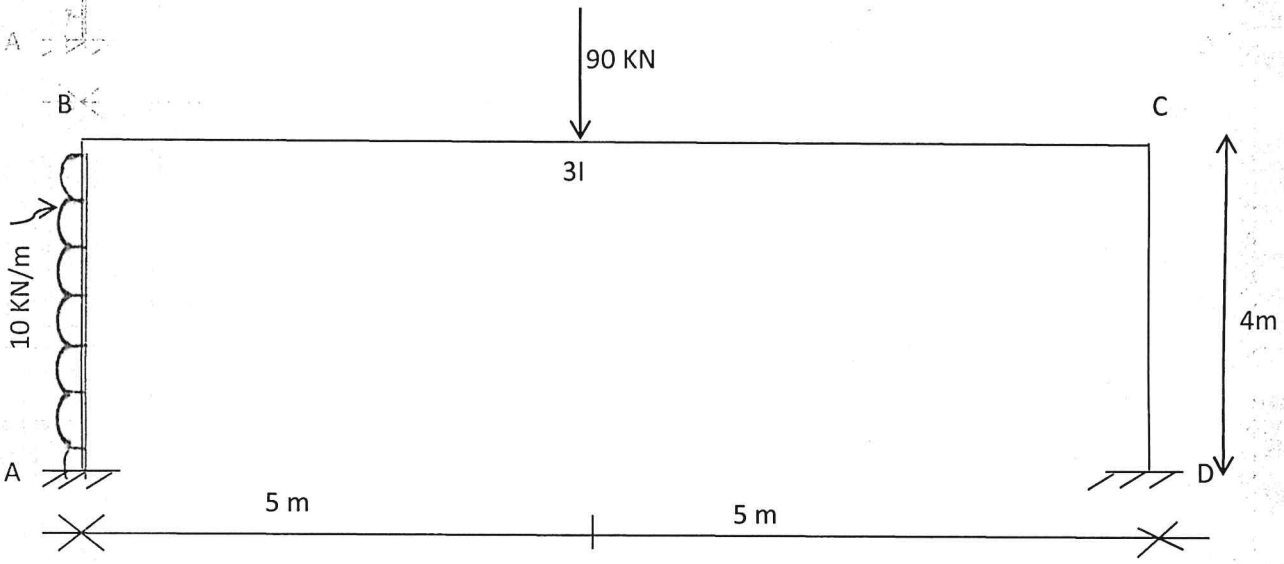
**(a)** Explain the Moment distribution method. **[10 marks]**

**(b)** Analyze the beam shown in the figure below by moment distribution method and draw the BMD. Assume EI is constant. **[20 marks]**



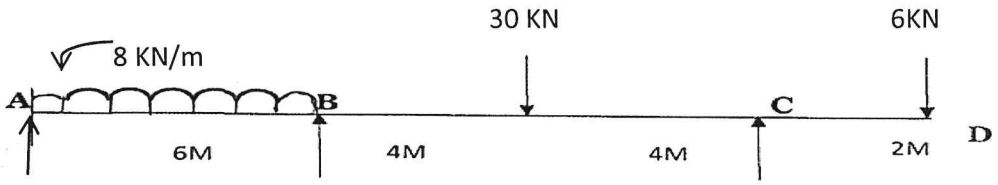

## Question TWO (20 marks)

Analyze the portal frame shown below using slope deflection method. Also draw the bending moment diagram.



**Question THREE (20 marks)**

Analyze the undermentioned continuous beam by slope deflection method and draw the MBD and SFD.




**Question FOUR (20 marks)**

Using virtual work method find the horizontal displacement of the roller support. Take E = 210 x $10^3$ $Nmm^2$, I = 2 x $10^8$ $mm^4$