QP Code: RJ23MTECH055 | Reg. No | | | | | | | | | | | AY 23

GIET UNIVERSITY, GUNUPUR – 765022

M. Tech (First Semester) Examinations, January – 2024

MPESE1031 - Matrix Method of Analysis of Structures

(Structural Engineering)

Time: 3 Hrs | Maximum: 70 Marks

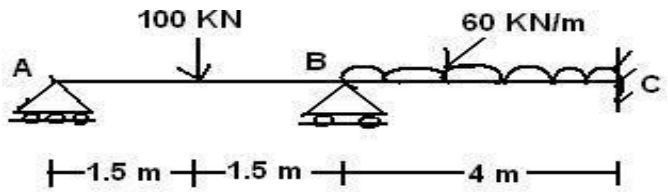
(The figures in the right hand margin indicate marks.)

PART – A **(2 x 10 = 20 Marks)**

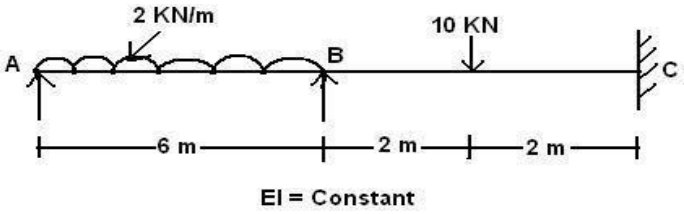
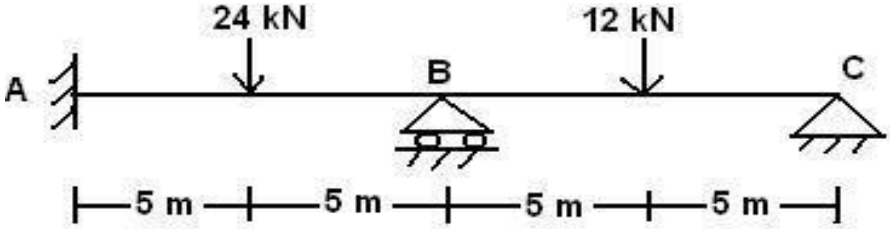
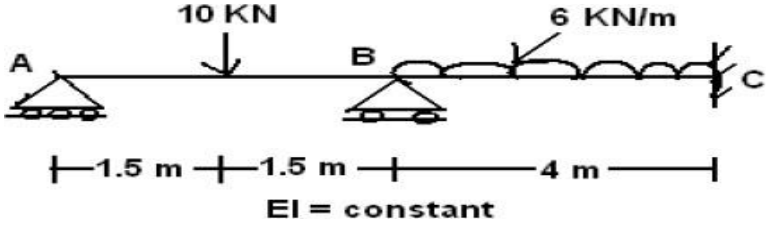
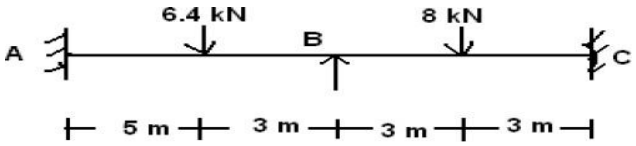
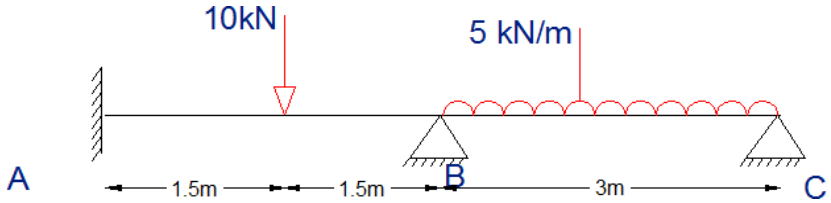
Q.1. Answer all questions	CO#	Blooms Level
a. Why flexibility method is also called as compatibility method or force method?	CO1	K1
b. What is transformation Matrix?	CO1	K1
c. Define plastic modulus.	CO2	K2
d. What do you mean by kinematic indeterminacy?	CO2	K2
e. Explain characteristics of stiffness and flexibility matrix.	CO2	K1
f. List various assumptions made in Euler's formula.	CO3	K1
g. What do you mean by degree of external indeterminacy?	CO3	K1
h. Define stiffness coefficient 'k_{ij}'	CO4	K1
i. Write a note on element stiffness matrix.	CO4	K1
j. List out the properties of rotation matrix	CO1	K1

PART – B **(10 x 5=50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO#	Blooms Level
2. a. Compare flexibility method and stiffness method.	5	CO1	K2
b. List out the advantages of FEA.	5	CO1	K2
3.a. Analyse the continuous beam shown in figure using force method	5	CO1	K2



b. Write down the various steps for flexibility method.	5	CO1	K1

4. a.	 Analyse the continuous beam ABC shown in figure by flexibility matrix method and sketch the bending moment diagram.	5	CO2	K3
b.	Analyse the continuous beam ABC shown in figure by flexibility matrix method and sketch the bending moment diagram . 	5	CO2	K3
5.a.	Discuss about Degree of Freedom and explain its types.	5	CO2	K3
b.	What are the properties which characterize the structure response by means of force-displacement relationship.	5	CO2	K2
6. a.	Analyze the continuous beam ABC shown in figure by stiffness method and also  sketch the bending moment diagram	5	CO3	K2
b.	Analyze the continuous beam shown in figure using displacement method. Draw the shear force and bending moment 	5	CO3	K2
7.a.	Write short note on advantage of matrix method.	5	CO4	K4
b.	Write short note on stiffness coefficients.	5	CO4	K4
8. a.	Analyse the continuous beam ABC shown in fig by stiffness matrix method and draw the bending moment diagram. 	10	CO4	K2

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