Ex/CE/5/T/306/2025

BACHELOR OF ENGINEERING (CIVIL ENGINEERING) THIRD YEAR SECOND SEMESTER EXAM 2025

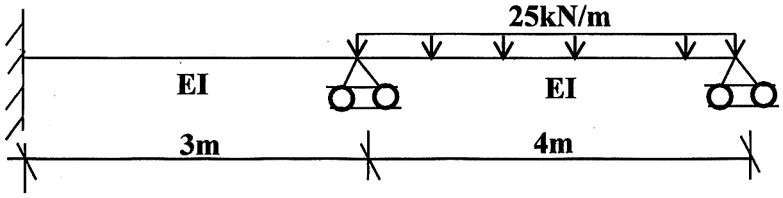
Subject: THEORY OF STRUCTURES-III

Full Marks:100 **Time: 3hours**

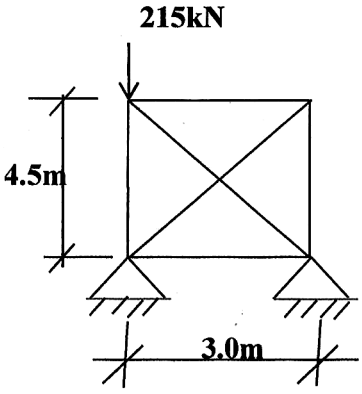
(Use Separate Answer scripts for each Part)

Part- I (Marks 50)

1. Analyze the beam given below. **Use Flexibility method (member approach).** **25**



2. Analyze the truss given below. **Use Flexibility method (member approach).** **25**



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BACHELOR OF ENGINEERING (CIVIL ENGINEERING) THIRD YEAR SECOND SEMESTER EXAM 2025

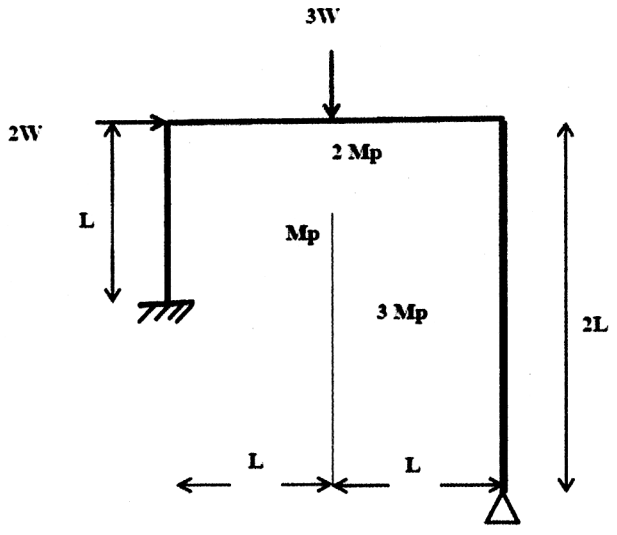
Theory of Structures-III

PART-II

Time: Three Hours

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part
[No code or handbook is allowed]

No. of questions	Part I (Answer Any Two of the following questions.)	Marks (2X25=50)
1	A suspension cable of 100 meters horizontal span and central dip 6 m has a stiffening girder hinged at both ends. The load transmitted to the cable including its own weight is 2500 kN. The girder carries live load 20 kN/m UDL over the left quarter of the span. Assuming the girder to be rigid, calculate the shear force, bending moment in the girder at 15 m from the left support. Also calculate the maximum tension in the cable.	15
2	Draw a neat sketch of a cable suspension bridge and mark define components of it. What is the advantage of cable suspension bridge?	10
2 (a)	Define lower bound theorem and upper bound theorem.	7
(b)	Find the collapse load for the following portal frame. 	18
3 (a)	Find the maximum value of **BMD** at midpoint of BC of the beam ABC, if 10 kN/m UDL of length 30m load passes over ABC. The beam is made of M30 grade of concrete. I=0.0864 m^4.	20

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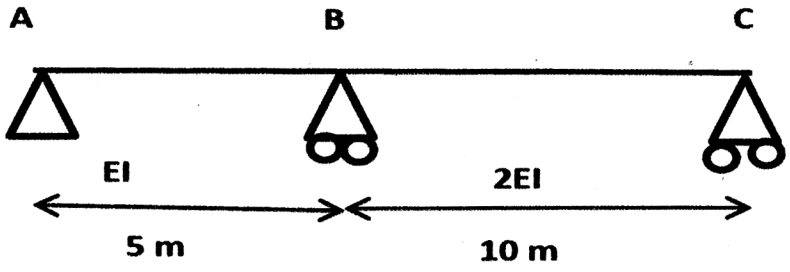
Theory of Structures-III

PART-II

Time: Three Hours

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part
[No code or handbook is allowed]

No. of questions	Part I (Answer Any Two of the following questions.)	Marks (2X25=50)
(b)	 State and explain Mulller-Breslau's principle.	5