

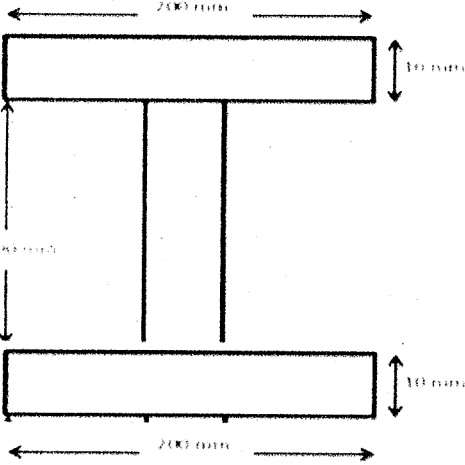
**BACHELOR OF ENGINEERING (CIVIL ENGINEERING) THIRD YEAR  
SECOND SEMESTER EXAM 2024**

**Theory of Structures-III  
PART-I**

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 and explain the function of different component of a cable suspension bridge.	10
2 (a)  (b)	<p>Find the Shape factor of the following section.</p>  <p>The diagram shows an I-section with the following dimensions: top flange width is 200 mm, top flange thickness is 10 mm, web height is 100 mm, bottom flange width is 200 mm, and bottom flange thickness is 10 mm.</p>	12

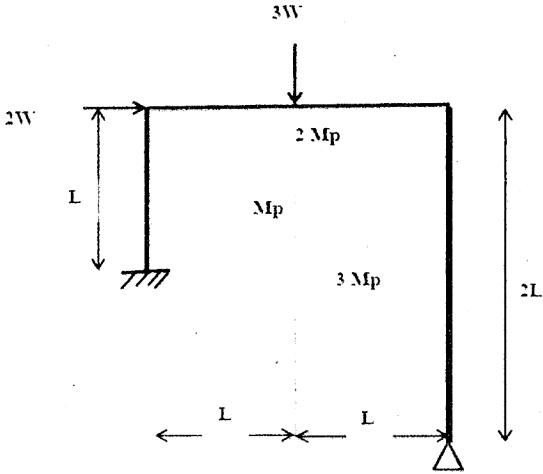
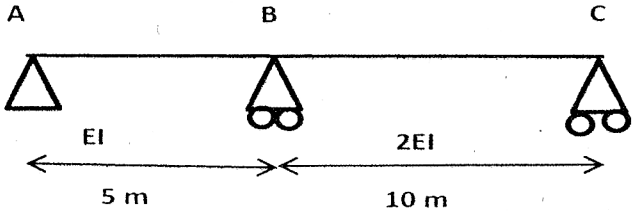
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PART-I**

Time: Three Hours

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No. of questions	Part I (Answer Any Two of the following questions.)	Marks (2X25=50)
	<p>Find the collapse load for the following portal frame.</p> 	13
3 (a)	<p>Find the maximum reaction value at A of the beam ABC, if 10 kN/m UDL of length 10m load passes over ABC. The beam is made of M30 grade of concrete. <math>I=0.0864 \text{ m}^4</math>.</p>  <p>State and explain Muller-Breslau's principle.</p>	20
(b)		5

Ex/CE/5/T/306/2024

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SECOND SEMESTER EXAM 2024**

**Subject: THEORY OF STRUCTURES-III**

**Full Marks:100**

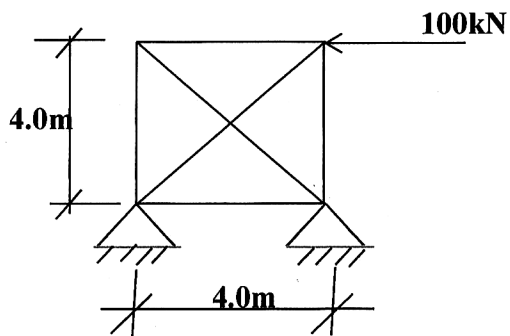
**Time: 3hours**

**( Use Separate Answer scripts for each Part)**

**Part- II (Marks 50)**

1. Analyze the truss given below. Use Flexibility method (member approach).

25



2. Analyze the truss shown below. All members have same "A" and "E". Use Stiffness method.

25

