Course Code: 1940118 **Roll No:** **MLRS- R19**

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
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II B.Tech II Sem Supply End Examination, March 2022

Structural Analysis – I

(CIVIL)

Time: 3 Hours. **Max. Marks: 70**

Note: 1. Answer any FIVE questions.
2. Each question carries 14 marks and may have a, b as sub questions.

1	Using method of joints determine the forces in all the members of pin jointed plane truss as shown in figure-1	14M	CO1	BL3

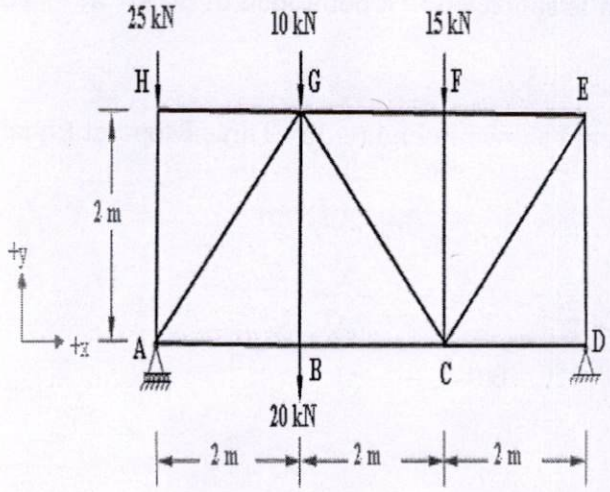

Figure-1

2	Using method of Sections determine the forces in all the members of pin jointed plane truss as shown in figure-2	14M	CO1	BL3

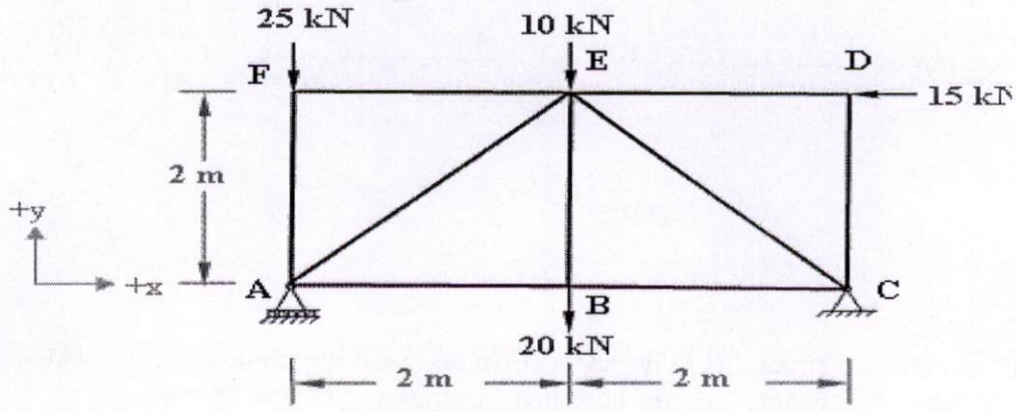

Figure -2

3	a)	State and list the application of Castigliaon's first theorem.	7M	CO2	BL3
	b)	Using unit load method Calculate Max.slope and Max.deflection for a simple supported beam carrying a point load 'W' at the center of the span of L m	7M	CO2	BL3
4	a)	A three-hinged parabolic arch has a span of 25 meters and rise 6meters. It carries a u.d.l of 25 kN per meter run on the left half of the span and a point load of 150kN at 5 meters from the right end. . Find the bending moment, Normal thrust and radial shear at a section 5 meters from the left end	7M	CO2	BL3
	b)	Analyze and draw S.F.D & B.M.D for a propped cantilever beam subjected to Uniformly distributed load of w kN/m over entire span L	7M	CO3	BL4
5	a)	State the advantages and disadvantages of fixed beams.	7M	CO3	BL1
	b)	A fixed beam of span 6 m is subjected to a point load of 50 kN at its centre. Draw BMD and SFD.	7M	CO3	BL3
6		Analyze the continuous beam shown in Figure-3by Three Moment Equation.	14M	CO4	BL4

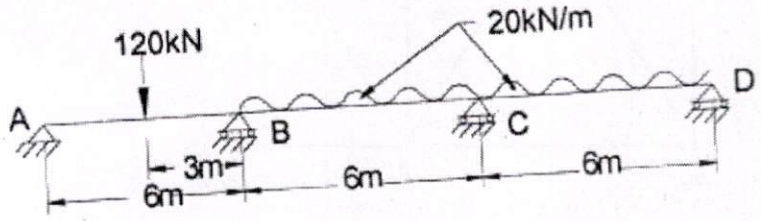

Figure-3

7	Analyze the continuous beam shown in Figure -4 by Slope Deflection Method.	14M	CO4	BL4

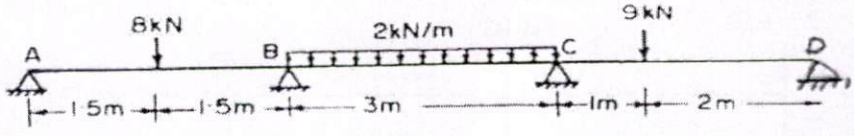

Figure-4

8	Define ILD and construct a ILD for shear force and bending moment for a simply supported beam. Explain how this generated ILD can be used for calculating shear and bending moment for a simply supported beam carrying a) U.d.l shorter than the span. b) U.d.l longer than the span.	14M	CO5	BL6

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