Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV (Old) EXAMINATION – WINTER 2019

Subject Code: 140603 Date: 14/11/2019

Subject Name: Structural Analysis-II

Time: 02:30 PM TO 05:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Write advantages and disadvantages of indeterminate structures.	**07**
	(b)	Explain Castingliano's 1st and 2nd theorems.	**07**
Q.2	**(a)**	Calculate central deflection for a simply supported beam subjected to udl throughout its entire span by Castingliano's 1st theorem.	**07**
	(b)	Derive the equation of fixed end moment developed due to UDL of intensity 'w' on a fixed beam AB of length 'L'.	**07**
		OR	
	(b)	What is fictitious load method? How it is used to determine unknown deflection?	**07**
Q.3	**(a)**	Using Castingliano's 2nd theorem, find the vertical reaction at point C for the frame shown in figure-1 and plot BMD for it. Take EI=Constant.	**07**
	(b)	Analyze the beam shown in figure-2 by slope deflection method. Also draw SFD and BMD.	**07**
		OR	
Q.3	**(a)**	Write the differences between a normal and Conjugate beam.	**07**
	(b)	Analyze the beam shown in figure-2 by moment distribution method. Also draw SFD and BMD.	**07**
Q.4	**(a)**	What is an influence line diagram? Explain its importance in structural analysis?	**07**
	(b)	Analyse the beam shown in figure-2 by Kani's method.	**07**
		OR	
Q.4	**(a)**	State and explain Muller Breslau principle	**07**
	(b)	Draw influence line diagram for support reactions Va and Vb for a propped cantilever beam of 10m length.	**07**
Q.5	**(a)**	Analyze the propped cantilever beam shown in figure-3 by Consistent deformation method.	**07**
	(b)	Write the advantages and disadvantages of prestressed concrete.	**07**
		OR	
Q.5	**(a)**	Explain methods of pre-tensioning and post-tensioning.	**07**
	(b)	Define 1) Relative stiffness, 2) carryover factor and 3)distribution factor	**07**

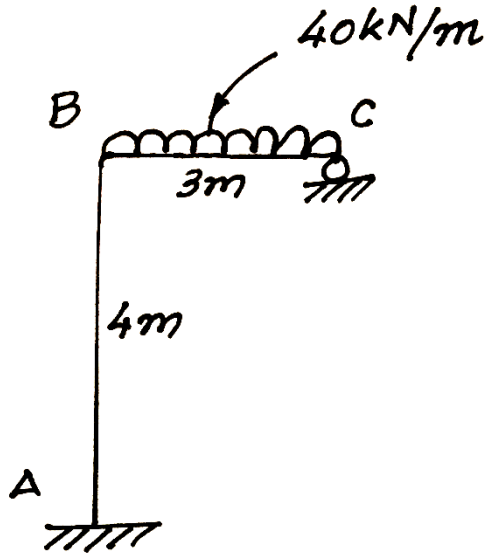

FIGURE-1

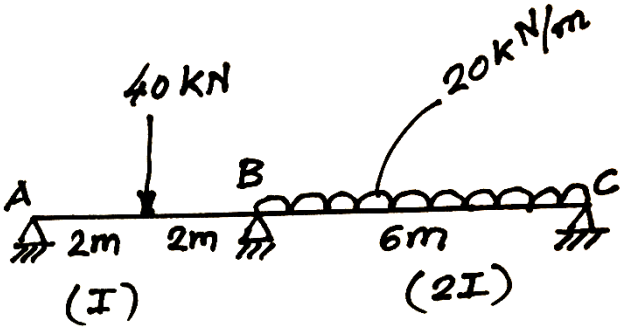

FIGURE - 2

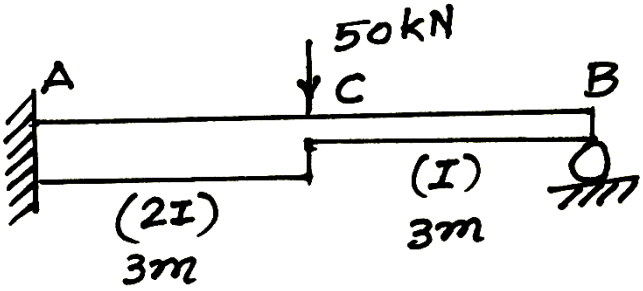

FIGURE - 3

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