

B.Tech. SEM -IV (Civil) 2014 Course (CBCS) : SUMMER - 2019

SUBJECT: STRUCTURAL ANALYSIS-I

Day: Saturday
Date: 01/06/2019

S-2019-2601

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

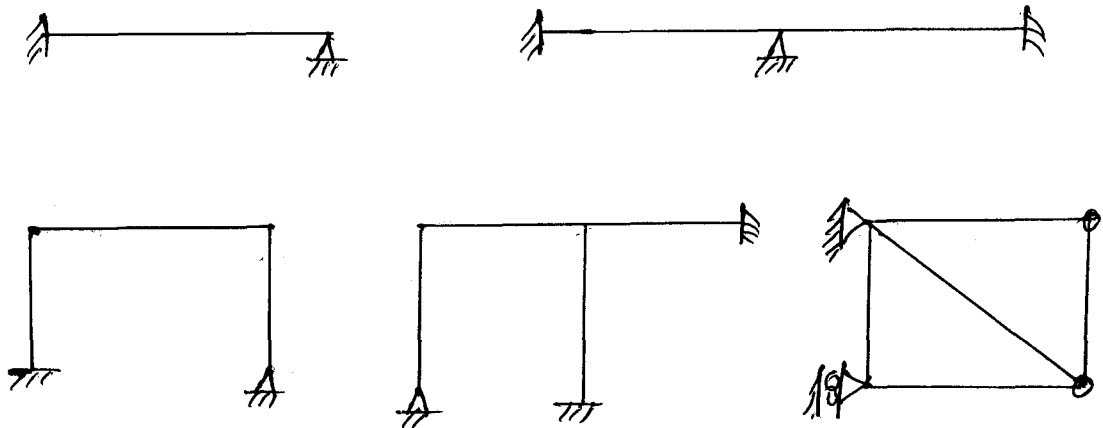
N.B:

- 1) All questions are **COMUPLSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.
- 4) Draw neat diagram labeled **WHEREVER** necessary.

Q.1 What is degree of static and kinematic indeterminacy of structure? Explain (10) with suitable examples of beams, frames and trusses.

OR

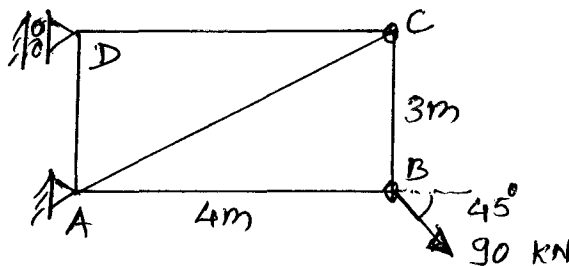
Q.1 Draw deflected shape for following structures. (10)



Q.2 What is conjugate beam? Explain conjugate beam method. (10)

OR

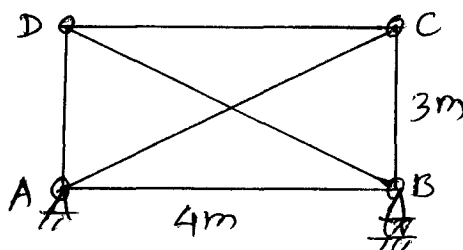
Q.2 Calculate horizontal deflections at joint 'B' of truss shown in figure. (10)
Take $E = 200\text{GPa}$, c/s of all members = 60mm^2



Q.3 What is indeterminate truss? What is redundant member? How force in redundant member is calculated? (10)

OR

Q.3 Calculate forces developed in the members of truss if member AC is too long by 12mm. Take c/s area for all members = 60mm^2 , $E = 200\text{GPa}$. (10)

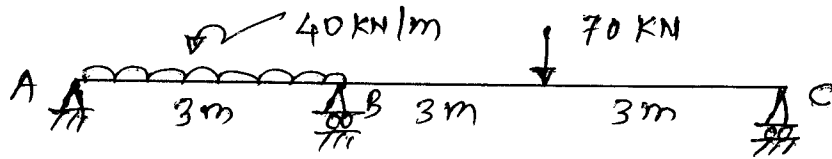


P.T.O.

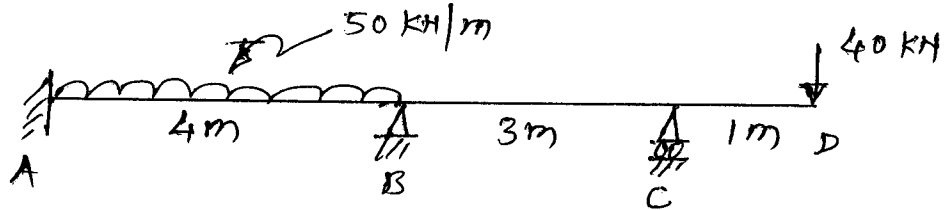
Q.4 Write fixed end moments developed in fixed beam for standard loading cases. (10)

OR

Q.4 Analyze the beam shown in figure using three moment theorem. (10)

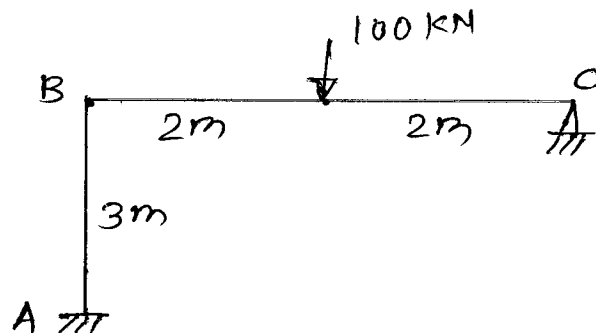


Q.5 Analyze the beam using slope deflection method. (10)

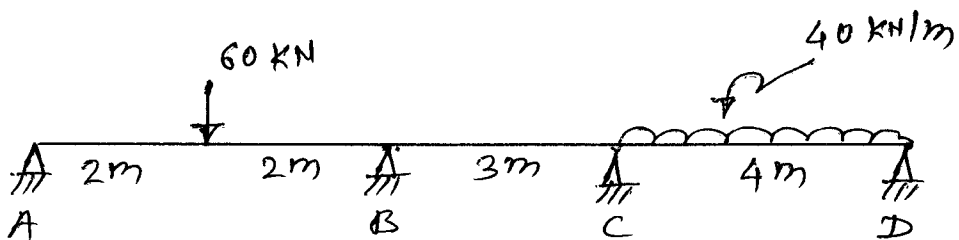


OR

Q.5 Analyze the frame using slope deflector method. (10)



Q.6 Analyze the beam using moment distribution method. (10)



OR

Q.6 Analyze the frame using moment distribution method. (10)

