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

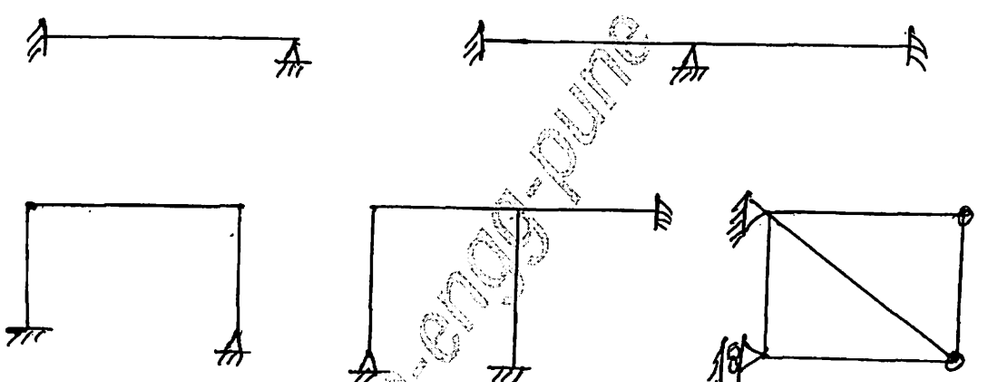
N.B:

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 with suitable examples of beams, frames and trusses. **(10)**

OR

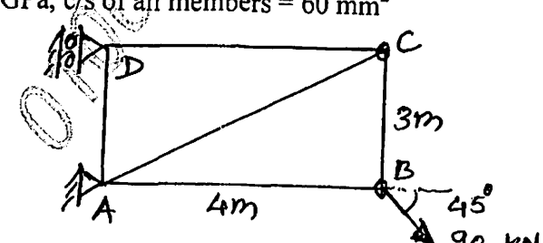
Q.1 Draw deflected shape for following structures. **(10)**



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

OR

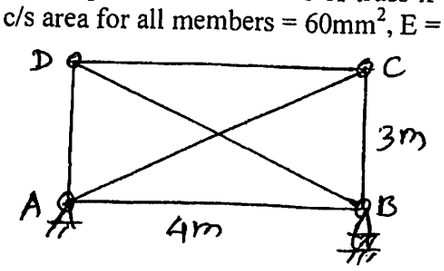
Q.2 Calculate horizontal deflections at joint 'B' of truss shown in figure. **(10)**
Take E = 200GPa, c/s of all members = 60 mm^2



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 = 200GPa. **(10)**

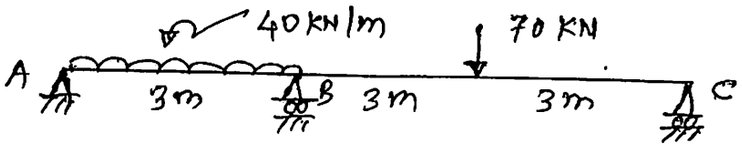


P.T.O.

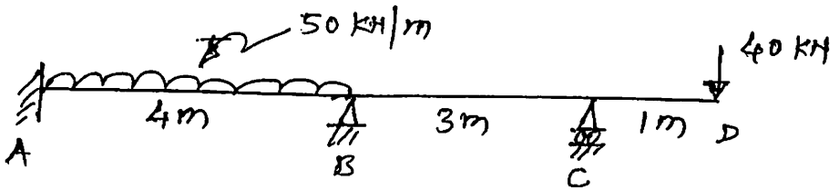
Q.4 Write fixed end moments developed in fixed beam for standard loading cases. **(10)**

OR

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

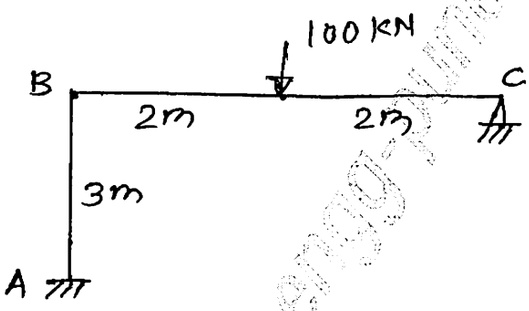


Q.5 Analyze the beam using slope deflection method. **(10)**

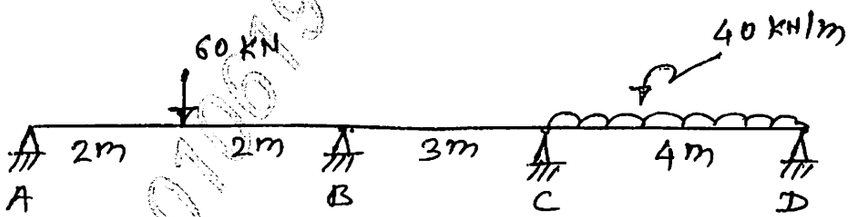


OR

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

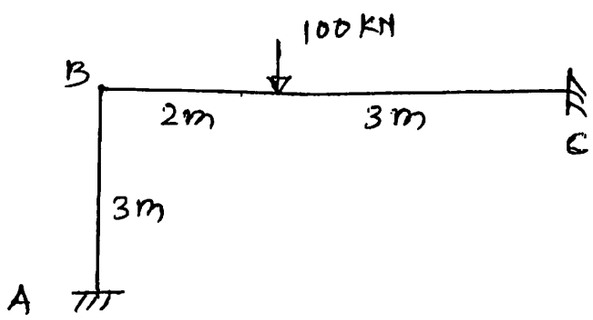


Q.6 Analyze the beam using moment distribution method. **(10)**



OR

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



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