Vimal Canen NATIONAL INSTITUTE OF TECHNOLOGY HAMIRPUR (H.P.) End Semester Examination, May 2023 Year & Sem.: 2nd Year 4th Sem. Time Duration: 3 Hrs. **Branch: Civil Engineering** Maximum Marks: 50 Subject Code: CE-221 Subject: Indeterminate Structures

Notes: (1) Attempt any 5 questions. All questions carry equal marks. (2) Assume suitable data and clearly mention it in the answer sheet, if missing.

- Q1. A propped cantilever beam AB is 9 m long is fixed at support A. Draw the influence line diagram for support reaction at B. Calculate the ordinate at an interval of 1.5 m.
- Q2. Draw the bending moment diagram for the following frame using moment distribution method. The flexural rigidity of columns is 1.5 time flexural rigidity of beams.





Q3. Draw the bending moment diagram for the follwing frame using slope deflection method. The flexural rigidity of member BD is twice the flexural rigidity of AB. The flexural rigidity of member CD is equal to flexural rigidity of AB.

Q4. Solve the following frame for bending moment, shear force, axial force using portal/method. Show different diagrams.



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Q5. Determine the deflection of the truss at joint B using unit load method. The support A is roller support and support **K** is a hinged support.



Q6. What do you understand by indeterminacy of structures? Determine the static and kinematic indeterminacy of the following problems:





(Best of Luck)

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