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Roll No. | | | | | | | | | | |

**B.E / B.Tech (Part Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2014**

CIVIL ENGINEERING BRANCH

Third Semester

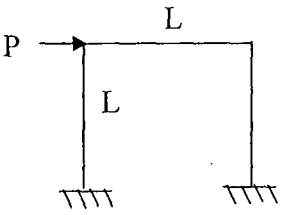
**PTCE 8303 - Structural Analysis I**

(Regulation 2013)

Time: 3 Hours | Answer ALL Questions | Max. Marks 100

**PART-A (10 x 2 = 20 Marks)**

1. State 'principle of work done'?
2. What is Williot diagram?
3. What are the assumptions made in the slope deflection method?
4. Write the shear equation necessary to solve the frame shown in figure below.




5. Define stiffness and carryover factor in Moment distribution method.
6. Draw the free body diagram for a fixed beam (10m span) subjected to a concentrated load of 100 kN at 3 m from left support.
7. What do you meant by compatibility conditions? What are the compatibility conditions to be satisfied at any joint?
8. Define static and kinematic indeterminacy.
9. Differentiate between local coordinates and global coordinates.
10. Develop element stiffness matrix for a 2D truss element

**PART B (16X5 = 80 Marks)**

11. Determine the vertical and horizontal displacement of the pin jointed frame shown in Fig.11.

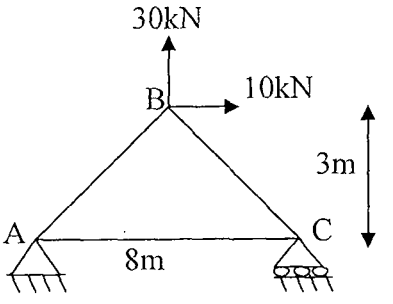



**Fig.11**

12. a) Analyze the frame shown in Fig.(12a) and plot the BMD. Use slope deflection method. EI is constant.

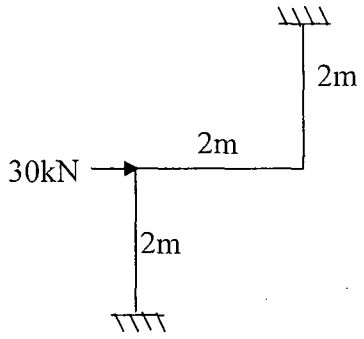



**Fig.(12a)**

**OR**

12.b) Analyze the continuous beam shown in Fig.(12b) and plot the BMD. Use slope deflection method.

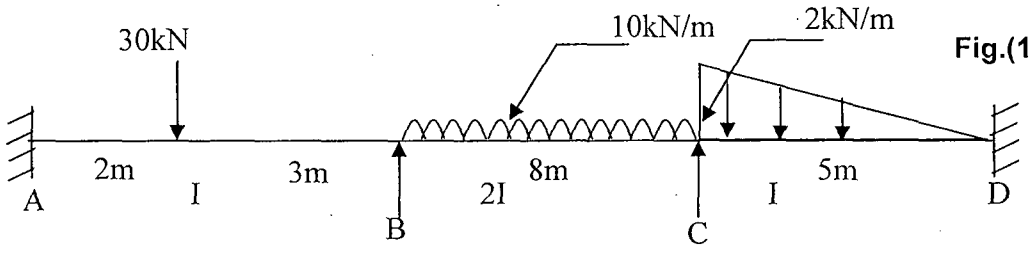



**Fig.(12b)**

13.a) Analyze the continuous beam shown in Fig.(13a) and plot the BMD and SFD. Use Moment distribution method.

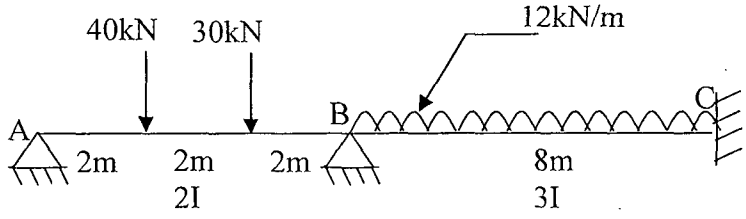



**Fig.(13.a)**

**OR**

13.b)Analyze the portal frame shown in Fig.(13b) by moment distribution method. Also Sketch the BMD. Given EI is constant.

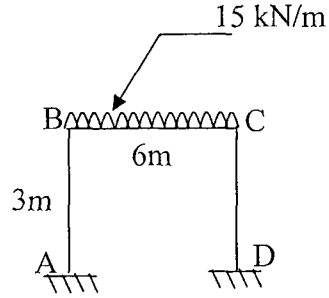



**Fig.(13.b)**

14.(a) Analyze the beam shown in Fig.(14a) by matrix flexibility method and plot the BMD. Given EI is constant.

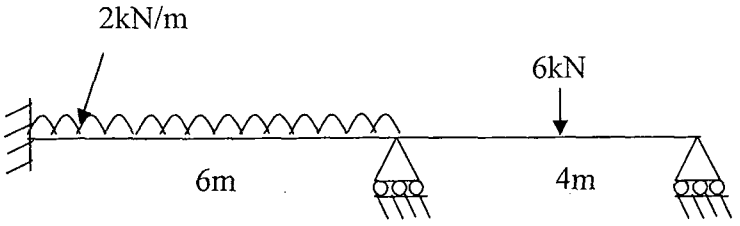



**Fig.(14.a)**

**OR**

14(b) Analyze the truss shown in Fig.14b by matrix flexibility method. Given AE is constant.

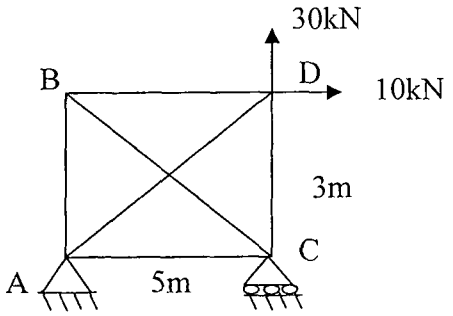



**Fig.14b**

15 (a).Analyze the continuous beam shown in Fig.(15a) and plot the BMD and SFD. Use Matrix stiffness method.

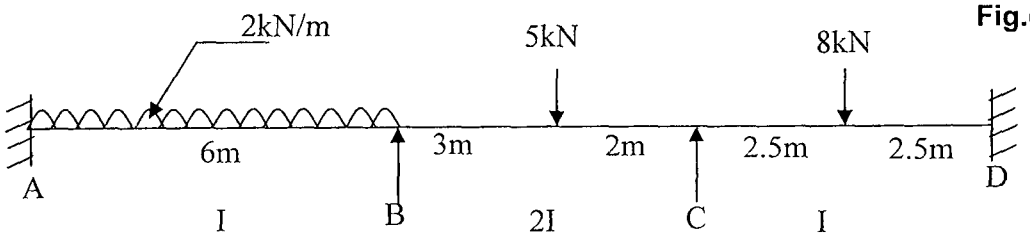



**Fig.(15a)**

**OR**

15( b) Analyze the portal frame shown in Fig.(15b) by matrix stiffness method and sketch the SFD and BMD. Given EI is constant.

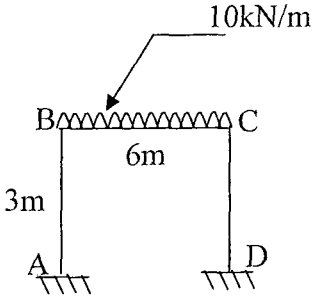



**Fig.(15b)**