Student Exam No._____

Ganpat University

B. Tech. Regular Examination Nov/Dec 2013

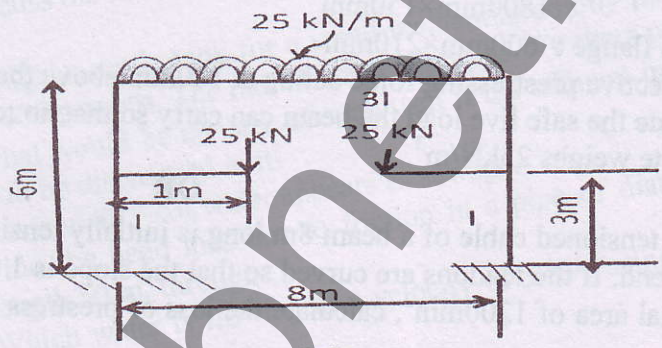
5th Semester Civil Engineering

2CI501 Structural Analysis-II

Instructions: - (1) Answer to the two sections must be written in **separate** answer books.
(2) Figures to the **right** indicate **full** marks.
(3) Assume suitable data if required.

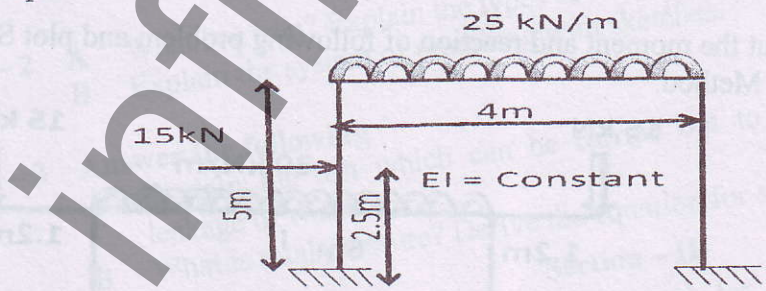
Section – I

1 A portal frame MNOP fixed at both end (M and P) as shown in figure. Solve the frame by SDM and plot SFD and BMD. **12**

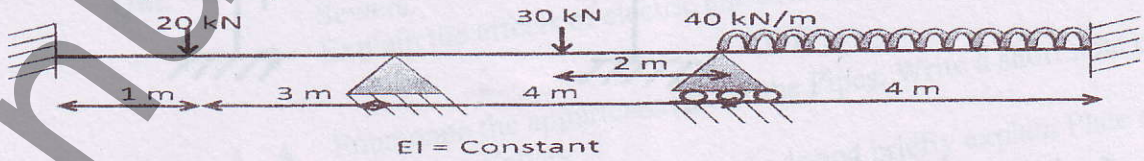


OR

1 A portal frame MNOP fixed at both end (M and P) as shown in figure. Solve the frame by SDM and plot SFD and BMD. **12**

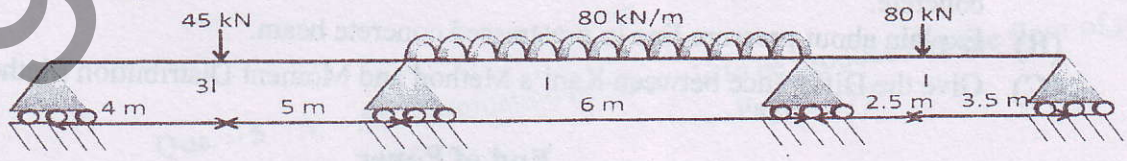


2 Solve this problem by Moment Distribution Method and plot SFD BMD for it. **11**

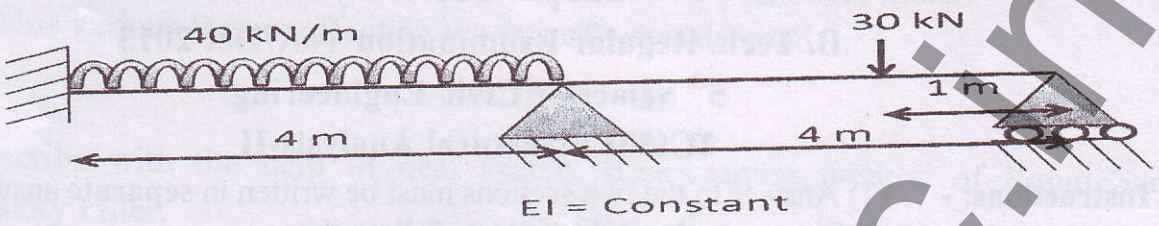


OR

2 Solve this problem by Moment Distribution Method and plot SFD BMD for it. **11**



3 Find out reaction by using Flexibility Matrices. 12



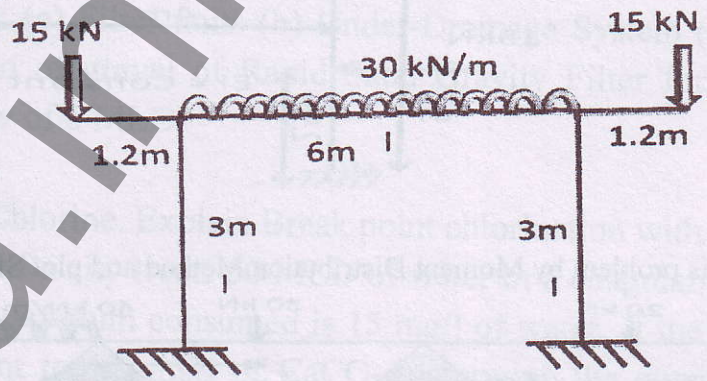
Section – II

4 A prestressed concrete beam of 10m span has the following dimensions: 12
Top flange : 1200mm×300mm
Web : 1800mm×150mm
Bottom flange : 600mm×210mm
The effective prestressing force acting at 100mm above the bottom edge is 900kN.
Calculate the safe live load the beam can carry so that no tension is developed at bottom.
Concrete weighs 25kN/m^3.

OR

4 A post tensioned cable of a beam 8m long is initially tensioned to a stress of 1000N/mm^2 at one end. If the tendons are curved so that the slope is 1 in 24 at each end, with a cross-sectional area of 1200mm^2, calculate the loss of prestress due to friction given following data: 12
Coefficient of friction between duct and cable = 0.3
Friction coefficient for wave effect = 0.0015 N/mm.

5 Find out the moment and reaction of following problem and plot SFD and BMD by using Kani's Method. 11



6 **Attempt any two:** 12
(A) Compare advantages and disadvantages of prestressed concrete versus reinforced concrete.
(B) Explain about pressure line in prestressed concrete beam.
(C) Give the Difference between Kani's Method and Moment Distribution Method.

End of Paper