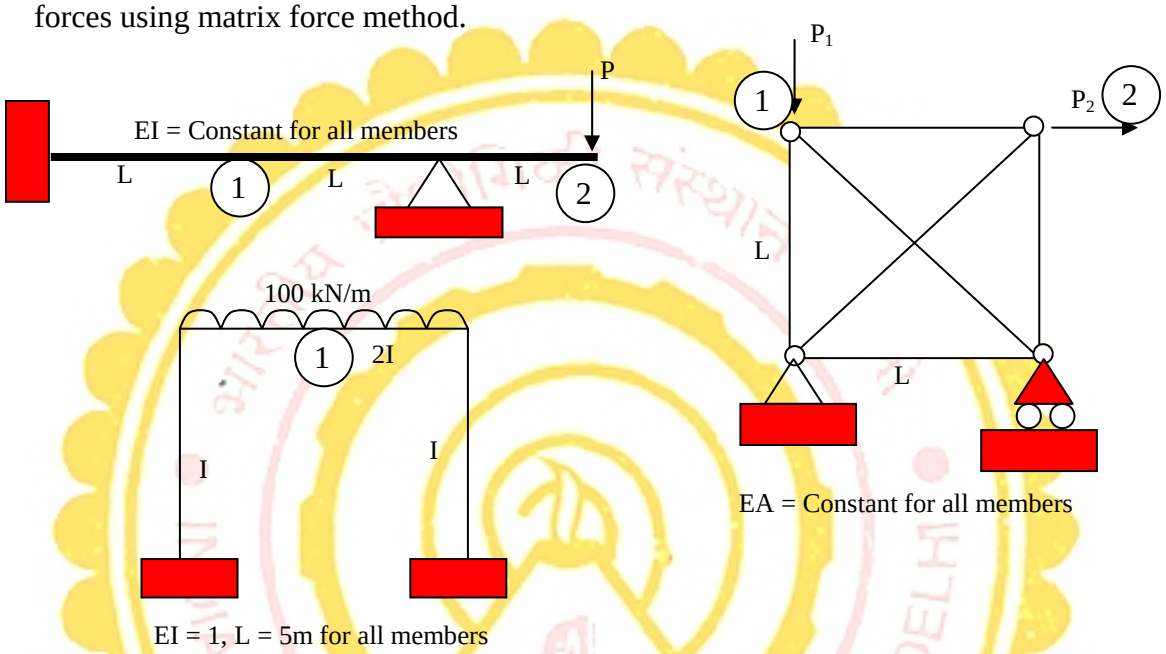
CEL331 STRUCTURAL ANALYSIS II (2010-11)

Tutorial Sheet 9

Matrix force method and Approximate Methods

(Available online at: : http://web.iitd.ac.in/~sbhalla/cel331.htm)

1. Compute the deflections at points marked with numbers in circle and the internal forces using matrix force method.



2. Compute the deflections in the beam structure shown above using energy approach. Compare the result with that obtained using matrix force method.

3. Analyze the frame of the optional programming assignment under horizontal loads (50 kN horizontal load on each floor) for m = 6 and n = 4 using either portal or cantilever method. How much is the error as compared to the output of the program. Assume all colums 300x300 mm and all beams 250x500mm in size.

4. Analyze the frame of optional programming assignment under vertical loads (20 kN/m on each floor) for m = 5 and n = 3 using moment distribution method. It is desired to compute the moments **ONLY** in third floor beams. Compare answer with that obtained by using the computer program. Assume all colums 300x300 mm and all beams 300x500mm in size.