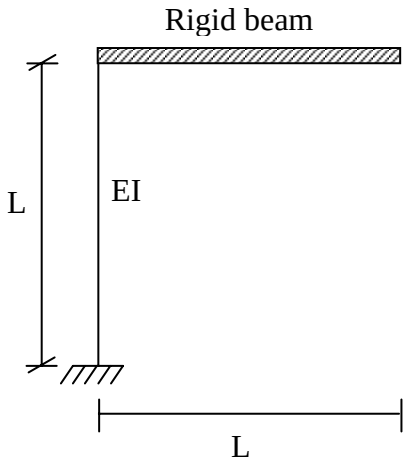
CE 487 **HOMEWORK – 3** **01/12/2006 (Due 2 weeks)**

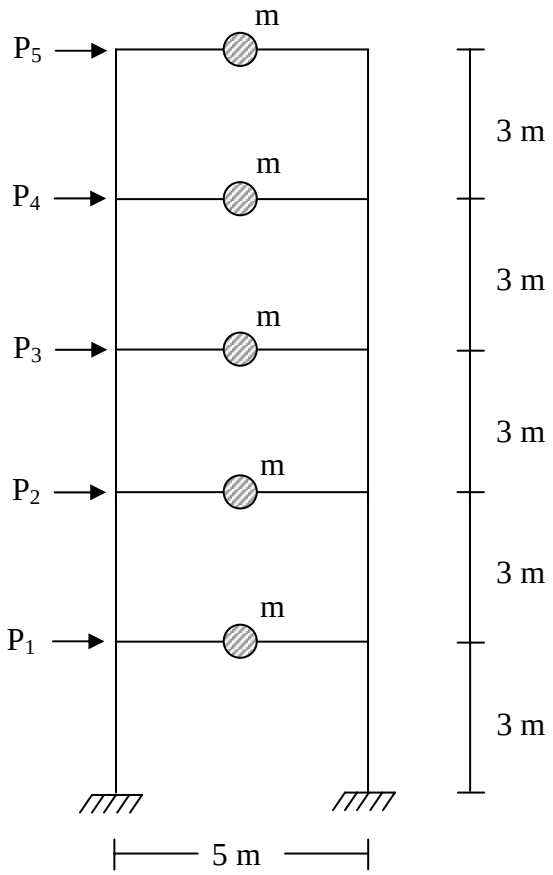
1.) A frame structure is given with a massless column, and a rigid beam with a total mass of m distributed uniformly along the length. Ignoring the axial deformations in the column and damping, determine

a) The equation of motion for free vibration.

b) Modal frequencies and the mass normalized modal vectors.



2.) A 5-story frame is given. Determine the equation of motion by using static condensation. Use MatLab or MathCad in your calculations, and show your steps explicitly. Ignore damping.



I_c=200000 cm^4 I_b=160000 cm^4 E=30000 MPa m= 25 tons