

Chapter 5

Q1. For the multi-bay portal frame as shown in Figure below, calculate the displacements x_1 and x_2 when subjected to El-Centro, 1940 (N-S component) earthquake ground motion for the following cases:

Case (i) Considering the same excitation at all supports (uniform excitation)

Case (ii) Considering multi-support excitations with a time delay of 3 s between supports

Assume percentage of critical damping as 4 %, $k/m = 100$ and all members are inextensible and EI values same for all members.

