

Sheet (4)

The structures shown can be treated as a SDF

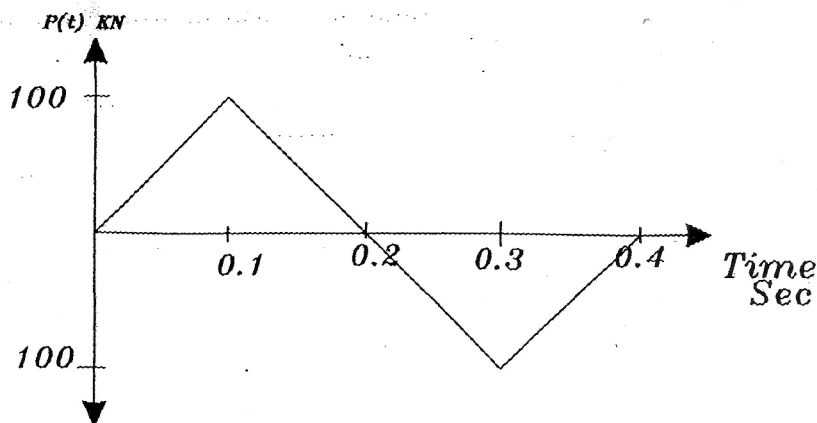
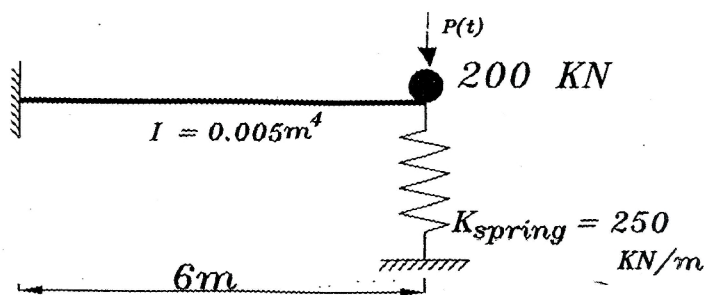
Problem (1)

The mass is subjected to load  $P(t)$  as shown

Using newmark's method for linear acceleration, determine:

- 1-The maximum dynamic displacement at mass point.
- 2-The maximum dynamic bending moment at critical section.

Consider  $\zeta = 0.05$ ,  $E = 2 \times 10^7 \text{ KN/m}^2$  and  $\Delta t = 0.05 \text{ sec}$ .



## Problem (2)

The shown Structure is subjected to a ground acceleration  $U_g''''(t)$

Consider that  $\zeta = 0.05$ ,  $E = 2 \times 10^7 \text{ KN/m}^2$ , Determine:

1-The response  $X(t)$  for the structure at time  $(t=0, 0.1, \dots, 0.4)$  Sec. using newmark linear acceleration method for the  $U_g''''(t)$ . Where  $(g)$  is the ground acceleration.

2-The dynamic bending moment at time  $(t=0, 0.1, \dots, 0.4)$  Sec.

