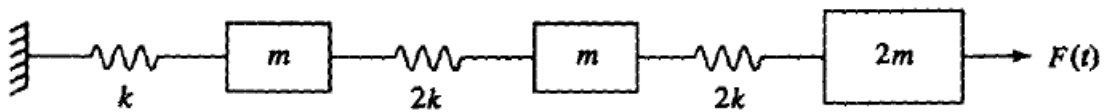


Assignment 1 (Due on March 18, Sunday 11:59 PM)

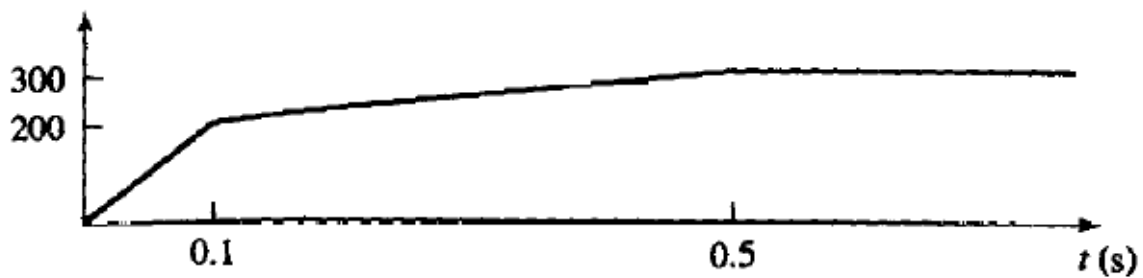
For all the problems given, first obtain and plot the responses of the system using modal analysis. Next, the results should be validated using solution obtained with ODE solvers available in Matlab. The codes need to be written using Matlab

The soft-copy of the assignment should be submitted in Moodle submission link. Plagiarism will be strictly penalized. A group of two students will choose one of the problems given below.

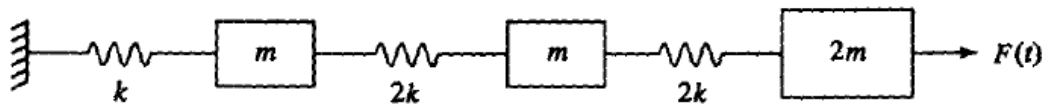
P. 1



$$k = 1.4 \times 10^5 \text{ N/m} \quad m = 20 \text{ kg}$$

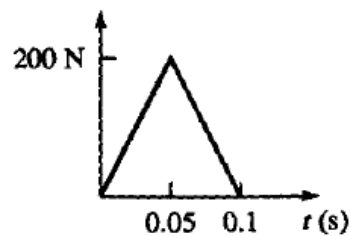


P. 2



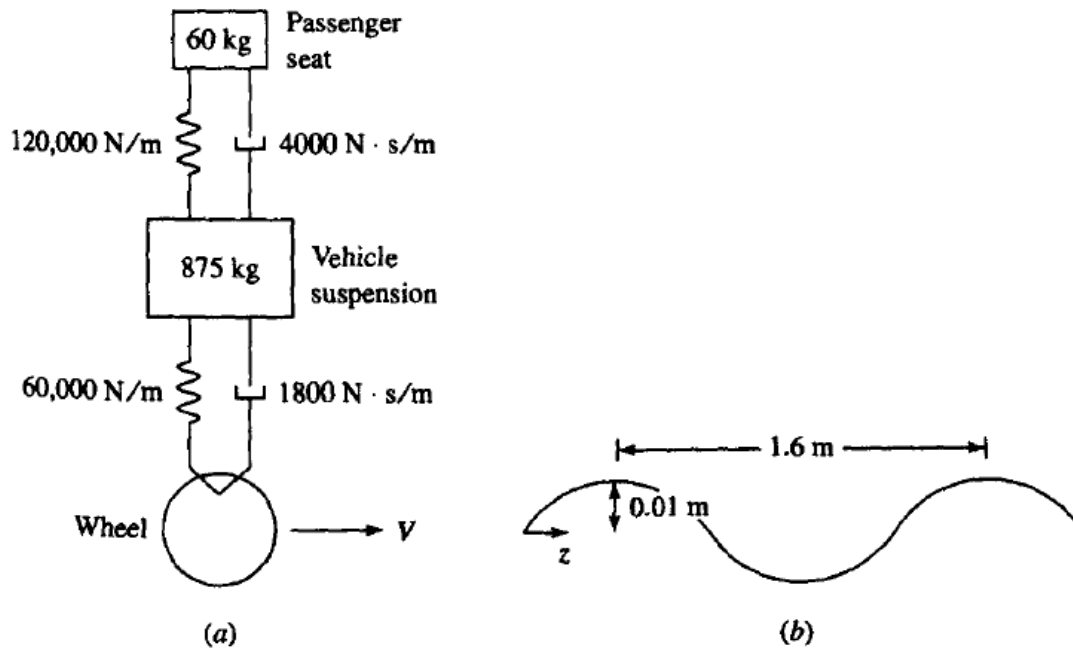
$$k = 1.4 \times 10^5 \text{ N/m} \quad m = 20 \text{ kg}$$

(a)



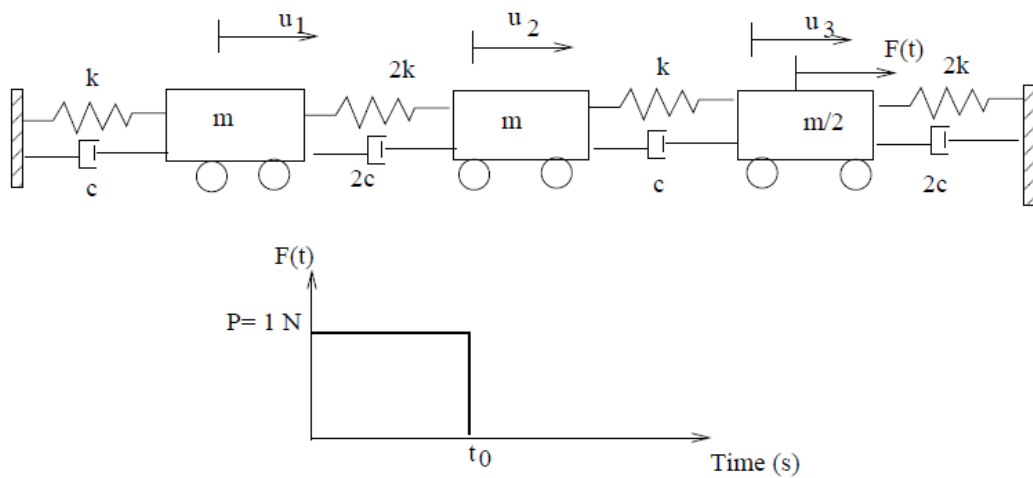
(b)

P. 3 The system shown in the Fig. below represents a simplified model of a vehicle suspension system and a passenger in the vehicle. The seat is modeled as a spring and viscous damper.



P. 4

$m = 10 \text{ kg}$, $k = 1000 \text{ N/m}$, $c = 40 \text{ N-s/m}$.



P.5

