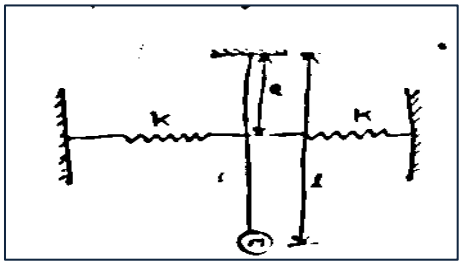
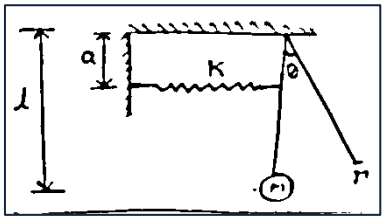
ASSIGNMENT-NVH

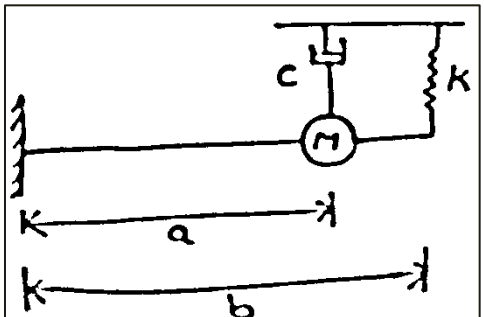
1. What are the auditory and non-auditory effects of noise on people?
2. Write a short on noise control methods at the source and at the receiver ends?
3. Explain the following:
   a. Sound power level b. sound intensity level c. sound pressure level
4. What is inverse square law? Deduce a relationship between sound power level and sound intensity level.
5. Write a detailed note on subjective response of human to sound, explain frequency dependent and sound pressure dependent human response.
6. Describe the equation of motion for a compound pendulum and find its natural frequency. What do you understand by Centre of percussion of percussion?
7. What do you understand by damping? Explain salient characteristics of coulomb damping and structural damping?
8. Define the vibration and various types of vibrations?
9. Derive an equation of motion for single degree damped free vibration system and give representative curve for Its motion for under damped, critically damped and over damped system?
10. The natural frequency of a spring mass system is to be 2 H_z . When an additional mass of 1kg is added to the original mass M, the natural frequency is reduced to 1 H_z . Find the spring constant K and mass M.
11. A 5kg mass attached to the lower end of a spring whose upper end is fixed and vibrates with a natural period of 0.45 sec. Determine the natural period when a 2.5kg mass is attached to the mid-point of the same spring with the upper and lower ends fixed?
12. Determine the natural frequency of the given system?



13. Derive the differential equation of motion for a spring controlled simple pendulum as shown in figure.



14. Determine suitable expression for equation of motion of the damped vibration system shown in Figure. Find the critical damping coefficient when a=0.10m, b=0.13m, k=4900 N/M and M=1.5 kg.



15. A vibrating system is defined by the following parameters:

    M=3kg , k=100 N/m , C=3N-sec/m

    Determine (a) Damping factor, (b) the natural frequency of damped vibration, (c) logarithmic decrement , (d) the ratio of two successive amplitudes and (e) the number of cycle after which the original amplitude is reduced to 20 percent.

16. A body of 5kg is supported on a spring of stiffness 200 N/m and has dashpot connected to it which produced a resistance of 0.002 N at a velocity of 1 cm/sec. In what ratio will the amplitude of vibration be reduced after 5 cycles.