Total No. of Questions : 12]

SEAT No. :

P753

[Total No. of Pages : 3

[4659] - 376

B.E. (Automobile Engg.) (Semester - I)

AUTOMOTIVE NVH

(2008 Pattern) (Elective - I (d))

Time : 3 Hours] *[Max. Marks : 100*

Instructions to candidates:

1) ***Answer three questions from section I and 3 questions from section II.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***

SECTION - I

Q1) a) Enlist the source of noise and vibration in automotive vehicle and discuss in brief. **[10]**

b) Why NVH is important in consideration with vehicle integrity and driver comfort. **[6]**

OR

Q2) a) Explain the physiological effect of noise and vibration. **[10]**

b) Write a short Note:- **[6]**

i) Noise

ii) Vibration

iii) Harshness

Q3) a) Explain co-ordinate coupling. **[8]**

b) Explain only static coupling. **[8]**

P.T.O.

sppuonline.com

OR

Q4) a) An aircraft ratio weighing 118N is to be isolated from engine vibration ranging in Frequencies From 1600 to 2200 cpm. What static deflection must the isolator For 80% isolation ? **[10]**

b) Explain generalized co-ordinates. **[6]**

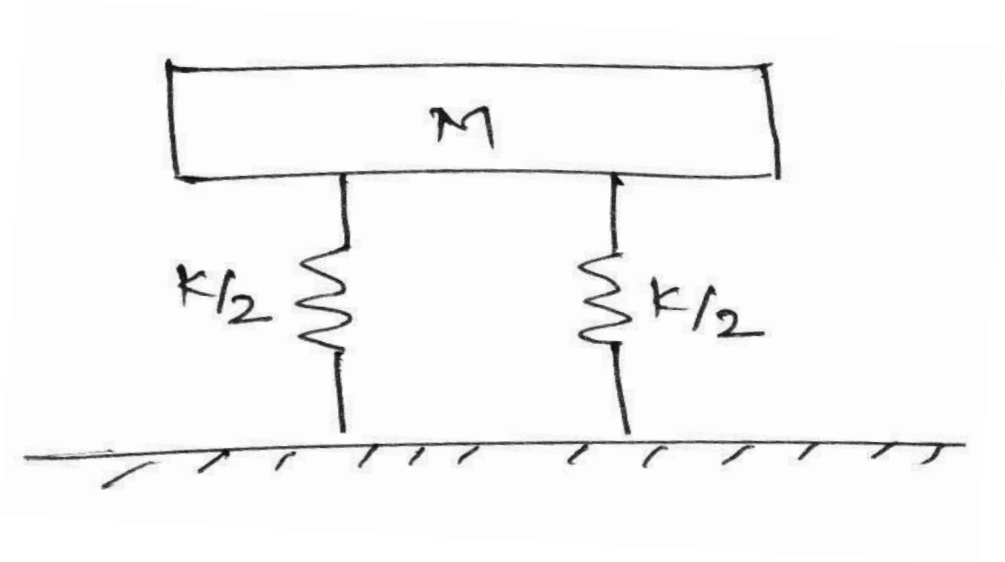
Q5) a) Describe in details untuned viscous damper and draw it's Frequency responce courve. **[9]**

b) Write short note on vibration isolation method of vibration isolation. **[9]**

OR

Q6) a) Enlist the types of damping and explain any two. **[8]**

b) Derive the equation of transmissibility ratio for isolation using spring as shown in Fig. **[10]**



SECTION - II

Q7) a) Define and write formula for:- **[6]**

i) Sound pressure

ii) Sound intensity

iii) Sound power

b) Relation between sound pressure, sound intensity and sound power level. **[4]**

c) Explain the weighting network. **[6]**

OR

Q8) a) Write a short Note. **[4]**

i) Structure borne noise

ii) Air borne noise

b) Determine the frequency of sound wave with a wavelength of 0.035m at room temperature, in air. **[6]**

c) Write a note on octave band analysis. **[6]**

Q9) a) Explain accelerometer as a NVH measuring tool. **[8]**

b) Write a Note on Frequency measuring instrument. **[8]**

OR

Q10)a) Explain with the help of neat sketch pass/noise measurement test. **[10]**

b) Explain with help of neat sketch construction and working of condenser microphone **[6]**

Q11)a) Describe various method to control automobile vehicle noise. **[9]**

b) Explain four Noise control techniques. **[9]**

OR

Q12)a) Explain method of control of noise for following:- **[10]**

i) Engine Noise

ii) Tyre Noise

iii) Aerodynamic Noise

iv) Transmission Noise

b) Write a short note on. **[8]**

i) Isolation

ii) Damping treatment