

Total No. of Questions : 10]

SEAT No. :

P3547

[Total No. of Pages : 2

[4959] - 1232

B.E. (Automobile Engineering)

Automotive NVH

(2012 Pattern) (Elective III) (End Sem)

Time : 2.30 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10,
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Use of logarithmic tables, slide rule, electronic pocket calculator is allowed.
- 5) Assume Suitable data if necessary

Q1) Define the following **[10]**

- a) Periodic Motion & Time Period
- b) Frequency & Amplitude
- c) Natural Frequency
- d) Fundamental mode of vibration
- e) Degree of Freedom

OR

Q2) Enlist the different types of vibrations. Explain each one in short **[10]**

Q3) An unknown mass M is attached to one end of a spring of stiffness K having natural frequency of 6Hz . when 1Kg mass is attached with M , the natural frequency of the system is lowered by 20% . Determine the value of unknown mass M and stiffness K . **[10]**

OR

- Q4)** a) Describe in detail untuned dry friction damper & draw its frequency response curve. **[5]**
- b) How to control torsional oscillations amplitude in engine crank shaft? Describe its procedure in detail? **[5]**

P.T.O.

- Q5) a)** What are the adverse effect of noise caused to machine, structure and human being. [8]
- b)** List down the different methods of vibration control. Explain any one of them in short. [8]

OR

- Q6) a)** Enlist the different steps involved in the vibration control. [4]
- b)** Discuss the characteristics of sound wave in brief. [12]

- Q7) a)** Enlist the types of the noise measuring instruments. Explain microphone as noise measurement device in detail. [10]
- b)** Discuss in brief Ambient Emission Noise standards in India. [8]

OR

- Q8) a)** The worker is exposed to noise according to the following schedule:[10]

Exposure Level DB	92	95	97	102
Period of Exposure	3	2	2	1

Does the daily noise dose is exceeded as per OSHA standards?

- b)** Explain in detail Interior Noise in a vehicle. [8]
- Q9) a)** Explain in detail Vehicular Noise Measurement Techniques? [8]
- b)** What do you mean by Noise Control along the path? Discuss it in brief.[8]

OR

- Q10) a)** Write a note on Engine Noise Control. [8]
- b)** Discuss the following [8]
- i) Brake Noise
 - ii) Noise Control at Source.

