

Roll No.

24480

B. Tech. 7th Sem. (ME)

Examination – May, 2015

MECHANICAL VIBRATION

Paper : ME-409-F

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions. Question No. 1 is *compulsory* and attempt at least *one* question from each Section.

1. Explain the following :

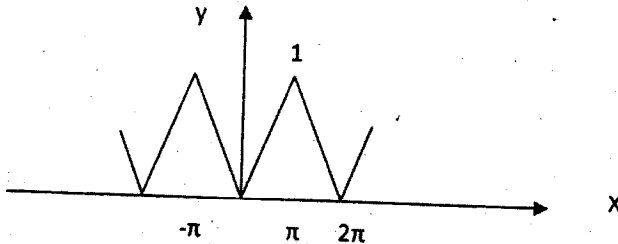
5 × 4 = 20

- (a) Transmissibility
- (b) Vibration Isolation
- (c) Continuous System.
- (d) Critical Damping Coefficient

SECTION - A

2. For a Classical spring mass system having damping, derive an expression which explains the system response to Overdamping. 20

3. Represent the Periodic motion shown by Harmonic Series. 20



SECTION - B

4. What is damping ? Derive an expression for energy dissipated by damping in case of forced damped harmonic vibration of a single degree of freedom system. 20
5. What do you understand by Transient Vibrations ? Explain the system response to Pulse Input. 20

SECTION – C

6. What do you understand by Coordinate Coupling ?
Explain with a labelled diagram in detail. 20
7. What is a Vibration Absorber and Vibration Isolator ?
Explain the similarities and differences between
them. 20

SECTION – D

8. Derive an expression explaining Longitudinal
Vibration in case of a Bar fixed at one end. 20
9. What is Torsional Vibration ? Derive an expression for
Torsional vibration in case of a shaft having torque 'T'
acting at both ends. 20
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