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

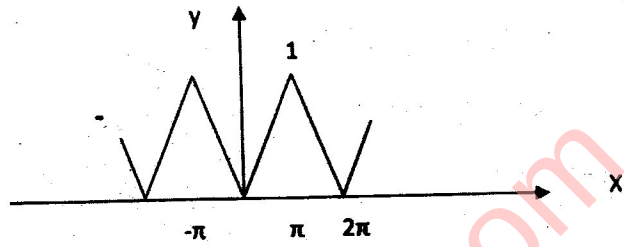
(c) Continuous System.

(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