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**B.Tech 7th Semester (Mechanical
Engineering) VII**

Examination – December, 2013

MECHANICAL VIBRATION

'F' Scheme

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 in total taking at least one question from each Section. Question No. 1 is compulsory.

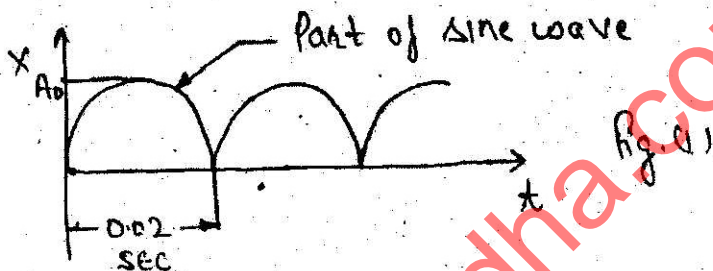
1. Explain the following :

4 × 5 = 20

- (i) Degree of freedom.
- (ii) Vibration isolation.
- (iii) Vibration damper
- (iv) Vibration string.

SECTION - A

2. (a) Classify the various types of vibrations. 10
- (b) Represent the periodic motion as shown in Fig. (i) by harmonic series. 10



3. What is D' Alemberts principle ? Also explain critical and over damping. 20

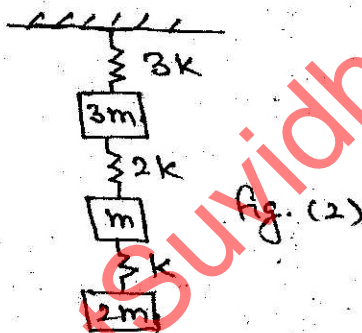
SECTION - B

4. What are various types of vibration measuring instrument ? Explain seismometer. 20
5. What is transient vibration ? Explain impulse excitation and arbitrary excitation. 20

SECTION - C

6. Explain centrifugal vibration absorber and co-ordinate coupling. 20

7. Determine the frequency of the system as shown in fig. (2) by matrix iteration method. 20



SECTION - D

8. Explain longitudinal and torsional vibration of rod. 20

9. Explain vibration of string and lateral vibration of beam. 20