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# H62

## B. Tech. EXAMINATION, 2020

(Eighth Semester)

(B Scheme)

(Main & Re-appear)

MECHANICAL VIBRATION

ME404B

ME

*Time :* 3 *Hours*] [*Maximum Marks :* 75

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

**Note** : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

### Unit I

**1.** What do you understand by the term Vibration ? Classify different types of Vibration in detail.

**2.** (a) Explain about underdamped system, overdamped and critical damped system.

(b) Determine the natural frequency of the system shown in Figure 1.

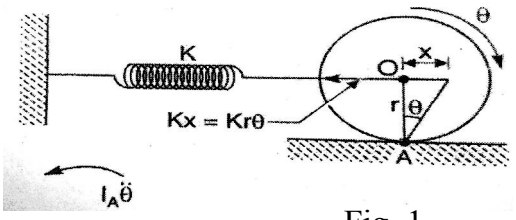


Fig. 1

## Unit II

**3.** A washing machine unit having a mass of 40 kg is to be supported on three springs, each having a spring constant K. The unit operates at 500 rpm. Determine the value of stiffness K if only 10% of the shaking force is allowed to be transmitted to the supporting structure.

**4.** Write short notes on the following :

(a) Transmissibility

(b) Vibration Isolation

(c) Critical Speed.

## Unit III

**5.** (a) What are Principal Coordinates ? What is their use ?

(b) What is a Vibration Absorber ? Briefly explain any simple vibration absorber.

**6.** Explain method of matrix iteration for determining natural frequencies and mode shapes.

## Unit IV

**7.** What is the improtance of Vibration measurement ? With the help of neat skeches explain any *two* vibration measuring instruments.

**8.** What do you mean by Condition Monitoring ? Discuss its need and types.