

M. TECH.-III (MECHANICAL CAD/CAM) (CBCS – 2015 COURSE) :
WINTER - 2017

**SUBJECT: SELF-STUDY PAPER – I: MACHINE CONDITION MONITORING &
DIAGNOSTICS**

Day : **Thursday**
Date : **25/01/2018**

W-2017-2929

Time: **11.00 AM TO 02.00 PM**
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

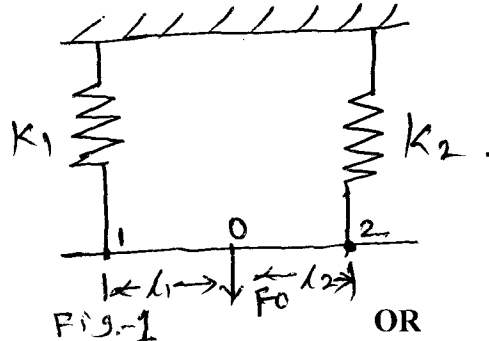
SECTION – I

- Q.1** Explain: a) Vibration analysis a key predictive maintenance technique [10]
b) Time based maintenance

OR

- Q.1** Explain the role of maintenance in any two mechanical system for satisfactory performance. [10]

- Q.2** Find the spring stiffness of the system shown in figure-1 at the point of force application. The mass less rigid bar 1 – 2 is free to have rectilinear and angular motions. [10]



OR

- Q.2** Explain use of vibration theory to machinery fault detection. [10]

- Q.3** Write notes on: [10]
a) Conversion of vibrations to electrical signal
b) Hand held vibration meter and analyzer

OR

- Q.3** Explain : a) Eddy current transducers [10]
b) Vibration analysis data base management software.

SECTION – II

- Q.4** Explain the Fast Fourier (FFT) analysis. How it is used for machine vibration monitoring. [10]

OR

- Q.4** What are the special signal processes? Explain any one in detail. [10]

- Q.5** Explain resonance vibration control with dynamic absorbers with neat sketch. [10]

OR

- Q.5** What is alignment? Which factors are influencing on alignment procedure? [10]

- Q.6** Write notes on: [10]
a) Additives b) Infrared analysis

OR

- Q.6** Explain in detail: [10]
a) Condition based maintenance and oil analysis
b) Bearing faults