

Code: ME6T1

III B.Tech-II Semester–Regular/Supplementary Examinations–March 2019

**MECHANICAL MEASUREMENTS
(MECHANICAL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) Differentiate between Primary, Secondary and Tertiary measurement methods.
- b) List any two advantages and limitations each for a Photo-voltaic transducer.
- c) State any four instruments for measurement of temperature.
- d) List out any 6 instruments used for measurement of pressure.
- e) State the basic difference between capacitive and ultrasonic level indicators.
- f) Write short notes on hand speed indicator.
- g) List out the relative advantages of Vibrometer and accelerometer.
- h) Mention any four instruments used for measurement of power.
- i) List out any six requirements of a strain gauge.
- j) Mention different types of air pollutants.
- k) List out various air pollution control methods.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Differentiate Direct and indirect measurement methods. 4 M

b) Briefly explain the static and dynamic characteristics of an instrument. 4 M

c) With the aid of neat sketch explain the working of the following:

- i. Potentiometer
- ii. Photo-emissive transducer 8 M

3. a) With the help of neat sketch explain the working of Bourdon tube pressure gauge for measurement of pressure. 8 M

b) Name different types of devices used for the measurement of level. With the aid of a neat sketch, explain the working of Laser Doppler Anemometer (LDA) used for flow measurement. 8 M

4. a) Enumerate the working of the following instruments with the help of a neat sketch

- i. Centrifugal Force tachometer
- ii. Drag cup tachometer. 8 M

b) With the help of neat sketch explain the working of a Vibrometer. 8 M

5. a) List out different instruments used for measuring Force and Torque. Explain how power is measured using Eddy current dynamometer. 8 M

b) With the help of neat sketches explain how strain gauges are used for measurement of bending and tensile strains. 8 M

6. With the help of neat sketches explain the working of the following instruments for the measurement of humidity:

a) Sling Psychomotor.

b) Dew-point meter.

16 M