PVP 14

Code: ME6T1

III B.Tech - II Semester – Regular/Supplementary Examinations
AUGUST 2021

MECHANICAL MEASUREMENTS
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

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

11 x 2 = 22 M

1.

a) List out the dynamic characteristics of any measurement system.
b) List out the different types of possible errors in measurements.
c) What are the desirable properties of materials used in resistance thermometers?
d) Differentiate atmospheric, absolute and gauge pressures.
e) What is an ionization gauge?
f) What are the different types of mechanical tachometers used for speed measurement?
g) List out the different seismic instruments.
h) What is Gauge factor of a strain gauge?
i) What are the advantages of using dynamometers?
j) Define dry bulb temperature in the measurement of humidity.
k) What are different types of air pollutants?

PART – B

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

3 x 16 = 48 M

2. a) Draw the general input-output configuration of a measurement system and explain. 8 M

   b) Explain the principle of operation of the following devices with neat sketches: (i) LVDT (ii) Capacitive type Transducer. 8 M

3. a) Explain with a neat sketch the working principle of McLeod gauge. 8 M

   b) Compare various flow measurement methods. 8 M

4. a) Explain the construction and working of Seismic accelerometer. 8 M

   b) Explain the working of stroboscope used for speed measurement. 8 M

5. a) What is the necessity of using rosettes for strain measurement? Explain. 8 M

   b) Explain the torque measurements and also their practical significance. 8 M

6. a) Discuss different air pollution control methods briefly. 8 M

b) How would you determine the simultaneous measurement of dry bulb and wet bulb temperature by using sling psychrometer? 8 M