

B.TECH. SEM -VI MECHANICAL 2014 COURSE (CBCS) :
WINTER - 2017

SUBJECT : MECHANICAL MEASUREMENT & METROLOGY

Day : **Thursday** Time : **10.00 AM TO 01.00 PM**
Date : **23/11/2017** **W-2017-2227** Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Use of non-programmable **CALCULATOR** is allowed.
 - 4) Assume suitable data if necessary.
-

Q.1 Identify the sensor, signal conditioner and display elements in the measurement systems of: [10]

- a) Digital thermometer b) Digital RPM Counter

OR

Q.1 List four different standard test inputs used for analysis of dynamic system. Using an appropriate example explain each of these in short. [10]

Q.2 Explain Vernier Caliper and Micrometer with neat sketch and also mention equation of L.C. for each. [10]

OR

Q.2 Which are the different types of standards used in measurement and state its advantages and limitations. [10]

Q.3 How wheat-stone bridge circuit is used in PT100 RTD for temperature measurement? Explain with neat circuit diagram. [10]

OR

Q.3 Write a short note on following: [10]

- a) Piezoelectric sensor b) Turbine meter

Q.4 Why it is necessary to give tolerance on engineering dimensions? Give example of both a unilateral and bilateral tolerance. [10]

OR

Q.4 What do you mean by measurement of straightness, flatness, concentricity and squareness? State its importance. [10]

Q.5 List the different types of sensors used for measurement of displacement. Using a suitable diagram explain the use of Linear Variable Differential Transformer (LVDT) for measurement of displacement. [10]

OR

Q.5 Which types of proximity sensors are used in following applications? State its range and working principle: [10]

- a) Mall glass doors opening and closing c) Car Reverse Parking Sensor
b) RPM measurement of motor

Q.6 Describe the principle and operation of Taylor-Hobson Talysurf surface roughness instrument. [10]

OR

Q.6 What are the various characteristics that you would measure in a screw thread? Also list the instruments / apparatus that are required for measuring these characteristics. [10]

* * * *