**No. of Printed Pages : 02** **Roll No. .....**

# W635

## B. Tech. (Weekend) EXAMINATION, 2020

(Sixth Semester)

(Re-appear Only)

(ME)

ME(W)310

MEASUREMENTS & INSTRUMENTATION

*Time :* 3 *Hours*] [*Maximum Marks :* 100

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 any *Five* questions. All questions carry equal marks. Any missing data may be asusmed suitably.

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

(a) Applications of instrument systems

(b) Standards and Calibration. **10+10**

**2.** (a) Distinguish between static and dynamic performance characteristics of instruments.

(b) Discuss the dynamic output response of first order system for step input signal. **10+10**

**3.** What do you mean by Transducer ? How do you classify transducers ? Discuss the following types of transducer : **20**

(i) Self-generating Inductive type

(ii) Piezo-electric

(iii) Capacitive type.

**4.** (a) Explain the working of : (i) Mechanical and (ii) Optical amplifying elements along with the applications.

(b) Explain the Data Acquisition System as an intermediate element used in instrumentation. **10+10**

**5.** Discuss the Optical and Electro-optical type devices used for measuring relative motion. **20**

**6.** (a) Explain the following measuring devices :

(i) Positive displacement meters

(ii) Variable area meters

(iii) Rotameters

(b) Describe the working principle of hot-wire anemometer. **15+5**

**7.** Discuss the following as temperature measurement devices/methods : **20**

(i) Bimetallic thermometer

(ii) Pressure thermometer

(iii) Pyrometry

(iv) Thermistors.

**8.** Discuss the following :

(i) Central limit theorem

(ii) Method of least square

(iii) Significance test. **20**