

Roll No

ME-5002 (CBGS)

B.E. V Semester

Examination, November 2018

Choice Based Grading System (CBGS)

Mechanical Measurement and Control

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Explain the orders of measurements. Write the equations for each of them.
b) Define the following:
 - i) Static calibration
 - ii) Dynamic calibration
 - iii) Range
 - iv) Phase linearity
2. a) Describe different types of errors encountered in measurement with suitable examples.
b) Explain Design Stage Uncertainty Analysis.
3. a) Explain RTD with a labeled diagram.
b) Draw and explain any two types of Thermal Expansion Thermometer.

4. a) What are Resistance Strain Gauges? Describe the method to calibrate it.
b) Explain Electromagnetic Technique to measure Angular Velocity.
5. a) Explain the following terms:
 - i) Transfer Function
 - ii) Signal Flow Graphs
 - iii) Liquid Level Systemb) Discuss the modelling of thermal systems.
6. a) Differentiate between Precision Errors and Bias Errors. Quote suitable example.
b) What is LVDT? Support your answer with suitable diagram and advantages.
7. a) Discuss the construction and working of Orifice meter, Venturimeter and Rotameter.
b) Explain Mechanical and Electrical Strain Gauges with advantages over each other.
8. a) Draw and discuss general model for a dynamic Measurement system.
b) What is Least Square Regression Analysis and Data outlier Detection?
