MEIC-105

M.E./M.Tech., I Semester

Examination, December 2017

Industrial and Process Instrumentation

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any Five questions.
ii) All questions carry equal marks.

1. a) Discuss various types of transducers with example. What are the basic requirement of the transducer.
   b) Differentiate between the following :
      i) Static and Dynamic characteristics of instrument.
      ii) Accuracy and Precision
      iii) Repeatability and Reproducibility

2 a) Explain the construction and working of LVDT with the help of neat sketch.
   b) Describe the different methods for measurement of thickness.

3. a) Describe the principle of operation of piezoelectric type vibration transducer.
   b) Describe the construction and working of thermistors. Draw their resistivity versus temperature characteristics.

4. a) By the use of suitable example, explain feedback and feed forward control concepts.
   b) How P and I action realized in a pneumatic controller? How are there action varied in magnitude.

5. a) Describe in brief the different tuning schemes used for a PID controller.
   b) Explain about the selection of controllers for different process.

6. Describe the design scheme for a Nuclear Power Plant.

7. a) Draw the symbols for the following final control elements.
      i) Control valve
      ii) Motor actuator
      iii) Heat Exchanger
      iy) Orifice Plate
   b) Discuss about the important factors before selecting.
      i) Air to close
      ii) Air to open pneumatic control valve

8. Write short notes on any two :
   a) Thermal Power Plant
   b) Measurement of Moisture
   c) Distillation Plants.

******