Roll No .....

MEPS-301(A)

M.E./M.Tech., III Semester

Examination, December 2014

Power System Instrumentation (Elective-I)

Time : Three Hours

Maximum Marks: 70

Note: i) Attempt any five questions.
ii) Each question carry equal marks.
iii) Assume any missing data if required.

1. a) Differentiate between sensors and actuators. Classify transducers with example.
   b) Describe velocity speed and acceleration measurement transducer in brief.

2. a) Describe solar flux measuring device in detail.
   b) Name temperature measuring transducers and compare them with example.

3. a) Discuss need of Bridges in the measurement system. Which bridge is the commonly used in the most of the measurement system? Explain that with the help of suitable circuit diagram.
   b) Describe the working of a Gas Analyzer with the help of suitable diagram.

4. a) Draw the block diagram of successive approximation type A/D converter and explain its working in detail.

   b) Describe Data acquisition system with the help of suitable block diagram.

5. a) Differentiate the following.
      i) A.C. and D. C. Signal conditioning system.
      ii) Single and multichannel data acquisition system.
   b) A 8 bit D/A converter has a reference voltage of 12 V. It uses a weighted resistive network. Calculate the minimum value of resistance R to be connected in the MSB input circuit such that the maximum output current dose not exceed 10 mA.

6. a) Name the basic types of digital modulation techniques used for data transmission and explain each with the help of suitable sketches.
   b) Define time division and frequency division multiplexing and explain time division multiplexing with the help of suitable block diagram.

7. a) Name the various types of indicating devices used for power system instrumentation system and explain any one in detail.
   b) Compare various display devices used in power system instrumentation system.

8. Write short notes (any two)
   a) Supervisory control
   b) Voltage and power factor measurement
   c) Pressure measurement
   d) Pollution monitoring device.

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