R – 481

Seat
No.

T.E. (Electrical) (Semester – V) Examination, 2009
INSTRUMENTATION TECHNIQUES
(New Course)

Day and Date : Tuesday, 1-12-2009   Total Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

Instructions : 1) *Attempt **any three** questions from **each** Section.*
 2) *Draw neat sketch **wherever** necessary.*
 3) *Figures to the **right** indicate **full** marks.*

SECTION – I

1. a) Explain with neat block diagram and an example, a generalised instrumentation
   system .   8

   b) Classify the transducers based on the principles of working. What are the
   factors which influence the selection of transducer ?   8

2. a) Explain chopper stabilized amplifier with neat diagram.   8

   b) From first principles, for a strain guage made of circular wire, derive expression
   for guage factor.   8

3. a) With neat diagram, explain programmable gain amplifier. Also derive
   expression for gain .   8

   b) Explain the working principle of the following transducers:-   8

      i) L.D.R   ii) Piezo-electric transducer.

4. Explain in brief (any three).

   i) Voltage to frequency converter.

   ii) Sample and Hold circuit

   iii) Type of filter

   iv) Data acquisition systems.   18

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5. a) List the various symbols used for input and output elements of PLC.   8

   b) Explain installation and selection of PLC.   8

6. a) Describe instrumentation setup for measurement of displacement.   8

   b) Describe instrumentation setup for measurement of pressure.   8

7. a) Explain working of Ramp digital voltmeter.   8

   b) Explain working of LCD'S. Also explain its important features.   8

8. Explain in brief (any three) :   18

   a) Digital input and output devices.

   b) Analog V/S digital measurement

   c) Oscillograph

   d) PLC communication and networking

   e) PLC hardware.