

Total No. of Questions : 8]

SEAT No. :

P2962

[Total No. of Pages : 2

[5669]-552

**T.E. (Electronics Engg.)
INSTRUMENTATION SYSTEMS
(2015 Pattern) (Endsem)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Figures to right indicate full marks*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Answer Q.1 or Q.2, Q3 or Q.4, Q.5 or Q.6, or Q.7 or Q.8.*

Q1) a) Define: [8]

- i) Sensitivity
 - ii) Resolution
 - iii) Repeatability.
 - iv) Reliability
- with suitable example.

- b) Draw block diagram of LM 75. Explain its working in details. [6]
- c) With the help of neat diagram explain how level can be measured using capacitance? [6]

OR

Q2) a) Classify sensors and transducer on the basis of their electrical parameters? [8]

- b) Describe E-nose and its applications in details. [6]
- c) Which are the differential head type flow meters explain? [6]
 - i) orifice
 - ii) venturi

Q3) a) What is CCD? Explain its working principle in detail with diagram.. [8]

- b) Extend your views on how capacitance & ultrasonic sensor can be used for displacement is measured. [8]

P.T.O.

OR

- Q4)** a) What do you mean by optical encoders? Explain how angular displacement is measure by it. [8]
b) Choose a sensor that can be used to radiation detection explain its working in details. [8]
- Q5)** a) List which magnetic field sensors is used in electronic circuits? Describe MRE in details. [8]
b) Discuss SMART sensor & its applications in details. [6]
c) State advantages & disadvantages of MEMS? [4]

OR

- Q6)** a) With the help of neat diagram explain bulk micromachining & surface micromachining? [8]
b) Draw construction diagram of Hot wire anemometer. And explain its working in brief? [6]
c) Write a short note on surface micromachined accelerometer? [4]
- Q7)** a) What is final control element? Explain any two cylinder type control valve? [8]
b) Describe in details any two types of electrical actuators used in process. industry? [8]

OR

- Q8)** a) Draw & explain any one hydrolic system with direction control valves symbolic representation? [8]
b) Explain construction of pressure control valves? State its application in industry point of view? [8]

