B.Tech. Third Semester (Chemical Engineering) (CGS)

10984 : Process Instrumentation : 3 CH 02

P. Pages : 2 | AW - 2995

Time : Three Hours | Max. Marks : 80

Notes :
1. Answer **three** question from Section A and **three** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Diagrams and chemical equations should be given wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) Discuss the selection criteria for measuring Instruments. **6**

b) Define accuracy of an instruments and discuss various ways of expressing accuracy. **7**

OR

2. a) What is calibration of an Instrument? Explain in detail the process with suitable example. **7**

b) Discuss the various functional elements of the generalized instrumentation system. **6**

3. a) What are the desirable properties of Industrial thermocouple? Explain in detail. **7**

b) Explain principle, construction and working of pressure spring thermometer. **7**

OR

4. a) Explain principle, construction & working of Radiation pyrometer. **7**

b) Describe liquid expansion thermometers in detail. **7**

5. a) Discuss in detail the desirable properties of manometric liquid. **7**

b) Explain bellows pressure gauge with neat diagram. **6**

OR

6. a) State Relation between: **7**

a) Absolute pressure & gauge pressure

b) Gauge pressure & Vacuum.

b) Discuss in detail various performance characteristics of pressure gauges. **6**

SECTION – B

7.	a)	Explain in detail with neat sketch; Ultrasonic flow meter.	7
	b)	Describe the principle, construction and working of Piston type flow meter.	7
		OR	
8.	a)	Explain in detail principle, construction and working of Rotameter with its applications.	7
	b)	Why square root compensation is essential in head flow meters.	7
9.	a)	When will you employ differential pressure method for level measurement? Describe its working.	7
	b)	Describe various methods of level measurement for corrosive liquid.	6
		OR	
10.	a)	Describe rotary level method and vibrating level indicator.	7
	b)	Describe radioactive method for level measurement.	6
11.	a)	Write short note on Humidity sensor.	7
	b)	Explain combination electrode for pH measurement.	6
		OR	
12.	a)	Discuss in detail various applications of pH measurements.	7
	b)	Discuss in detail important properties of humidity sensor for better performance.	6

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