

Total Pages—4

(Set-P)

B. Tech. - 6th(CE)
Process Instrumentation

Full Marks : 70

Time : 3 hours

**Answer any six questions including Q. No. 1
which is compulsory**

The figures in the right-hand margin indicate marks

Make suitable assumptions, if necessary

Symbols carry usual meaning

1. Answer the following questions : 2 × 10
- (a) Explain the difference between span and range.
 - (b) What is transfer function and write the transfer function of first order system ?
 - (c) Define sensitivity of an instrument.
 - (d) Explain the difference between Speed of Response and Lag ?

(Turn Over)

(2)

- (e) What is Seebeck effect ?
- (f) Define Beer's Law.
- (g) Write the application of Biosensors.
- (h) Name minimum four equipments used for the measurement of liquid flow rate.
- (i) What are the important components that will be there in the Gas Chromatograph ?
- (j) Explain dynamic characteristics of any instrument.

- 2. (a) Describe the methods of measurement of moisture in Lumber. 5
- (b) Explain the working of refractometer with neat sketch. 5
- 3. (a) Explain the measurement of absolute pressure using Mc.Leod gauge and their useful range. 5
- (b) Describe the method for measurement of Density of liquid. 5

(3)

4. (a) Describe briefly about Mass Spectroscopy. 5
(b) Explain briefly about the various functional elements of a Pressure thermometer with neat labeled diagram. 5
5. (a) Describe briefly about the various types of viscosity measuring devices. 5
(b) Describe briefly about various types of Manometers. 5
6. (a) Describe briefly about various types of Ionization Gauges used for measurement of Vacuum pressure. 5
(b) Explain the difference between head flow meter and area flow meter. 5
7. (a) Explain briefly about the Strip Chart Recorders. 5
(b) Explain briefly about the automatic control system used for Distillation column. 5
8. Write short notes on any two : 5 × 2
(i) Circular Charts

(4)

(ii) Hygrometer

(iii) Optical Pyrometer

(iv) Pressure measurement in open vessels.
