

Electronic Instrumentation
(REVISED COURSE)

Con. 2940-06.

TV-8353

(3 Hours)

[Total Marks : 100

- N.B. (1) Question No. 1 is compulsory.
 (2) Attempt in all five questions, including Question No.1.
 (3) Assume suitable data if necessary.
1. (a) Draw a typical data acquisition system and explain function of each block. 10
 (b) What is telemetry system. 5
 (c) Compare the analog instrumentation system with digital instrumentation system. 5
 2. (a) Describe different types of capacitive transducers and compare their sensitivities. 10
 (b) Draw a three opamp instrumentation amplifier and explain its gain adjustments. 10
 3. (a) Describe in brief the Construction, Working Principle and Range of measurements for the following :— 12
 (i) Rotameter (ii) LVDT (iii) Hygrometer.
 (b) Describe in brief PID controller. 8
 4. (a) Consider a second-order system model of instrumentation system and discuss in brief response of the system to step input. 10
 (b) What are the Data Loggers ? 6
 (c) Differentiate between active and passive transducers. 4
 5. (a) Describe in brief measurement of temperature with thermocouple, thermistors. 10
 (b) Draw basic block diagram to explain PLC system. 10
 6. (a) Explain the working principle of the Bellow and Bourdon tube. 8
 (b) Discuss in brief the principle of Magnetic Flow Meter. 6
 (c) Design a second order butterworth filter for a cut-off frequency of 1 kHz. 8
 7. Write short note on the following :— 20
 (a) Ultrasonic flowmeter. (d) Piezoelectric transducer.
 (b) A to D conversion technique. (e) Sample and hold circuit.
 (c) Strain gauge.