

Con. 9184-13.

GS-1069

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is compulsory.
 (2) Answer any **four** from the remaining **six** questions.
 (3) Draw **suitable** diagram.
1. (a) What are the static and dynamic characteristics of measurements ? Define each of them. 10
 (b) Explain the working and application of LVDT. 10
 2. (a) What is the difference between active and passive filters ? Explain frequency response of Low pass, High pass, Bandpass and Band Reject filter. Show how Bandpass response can be achieved from Low pass and High pass filter. 12
 (b) Explain the principle and working of a switched capacitor filter. 8
 3. (a) Explain the principle of RTD. Draw the 3-wire scheme for temperature measurement using RTD. 10
 (b) What is Data Acquisition System ? Draw block diagram for a Multichannel Data acquisition system and explain. 10
 4. (a) What are various pressure sensing elements ? Draw and explain all of them. 10
 (b) What are the various signal conditioning circuits ? Explain any two of them. 10
 5. (a) Compare RTD, thermocouple and thermistor. 10
 (b) What is an Instrumentation amplifier ? Explain three Op-amp instrumentation amplifier and derive necessary equations. 10
 6. (a) What is a Data Logger ? Draw its block diagram and explain. 10
 (b) Explain successive approximation A/D converter with block diagram. 10
 7. Write short notes on any **three** :- 20
 - (a) Humidity measurement
 - (b) Five point calibration procedure
 - (c) PID controller using Op-amp
 - (d) Explain ON-OFF control process.