

T.E (EXTC) Sem VI (CR)

28/5/09

1 sthalf-09-nkE 47
Con. 2869-09.

Electronic Instrumentation
(REVISED COURSE)

3 p.m. to 6 p.m.
VR-5392

(3 Hours)

[Total Marks : 100

- N.B.:** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) Draw **neat** diagrams wherever **necessary**.

1. Write notes on (any two) :— 20
 - (a) Signal conditioning circuits
 - (b) Supervisory control
 - (c) Characteristics and selection of transducers for a given application.

2. (a) Explain the importance of obtaining mathematical models of measurement systems with an example. 10
(b) With neat diagrams explain any two configurations of a multichannel data acquisition system. 10

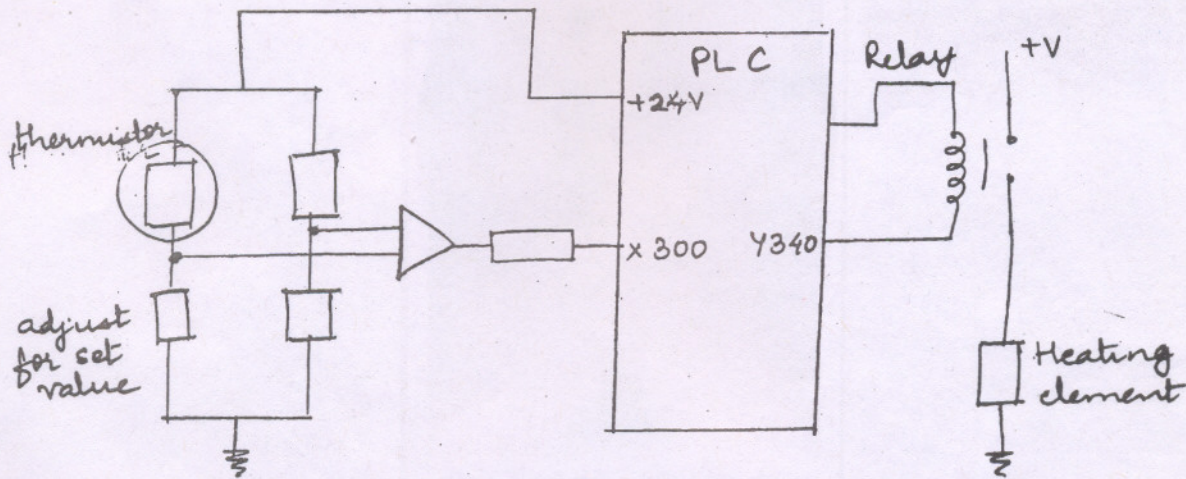
3. (a) Explain the construction and principle of working of a Linear Voltage Differential Transformer (LVDT). Explain how the magnitude and direction of displacement of the core of an LVDT is detected. 10
(b) Explain method for measurement of liquid level by electrical method. 10

4. (a) Explain the various uses of inductive transducers. 10
(b) Explain the terms : Process characteristics, process equation, process load and process lag with the help of an example of any process. 10

5. (a) Explain the statement : "PLCs are similar to computers but have certain features which are specific to their use as controllers". 5
(b) Summarize the sequence followed by PLC when carrying out a program. 5
(c) Explain various methods of training neural networks. 10

6. (a) With the help of an example, explain :— 10
 - (i) Cascade Control
 - (ii) Feed forward control.
(b) Describe the elements of fuzzy logic. Explain the applications where the use of fuzzy controllers is advantageous. 10

7. (a) Describe in detail computer based data acquisition systems. 10
- (b) (i) Explain relay type instructions that are most commonly available in any controller that has a ladder diagram instruction set. 5
- (c) Draw a ladder diagram to illustrate the system shown below : 5



The diagram shown an ON-OFF temperature control system in which the input goes from low to high when the temperature sensor reaches the set temperature. The output is then to go from on to off. The temperature sensor is a thermistor connected in a bridge arrangement and the op-amp is connected as a comparator.