

Total No. of Questions : 8]

SEAT No. :

P2288

[Total No. of Pages : 2

[5254]-622

B.E. (Electrical) (Semester – I)

PLC AND SCADA APPLICATIONS

(2012 – Pattern)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Neat diagrams must be drawn wherever necessary.
- 2) Black figures to the right indicate full marks.

- Q1)** a) State advantages and disadvantages of PLC. [8]
- b) Draw and explain ladder diagram of Down counter along with all its bits. Draw its timing diagram also. [8]
- c) Which are the different ON/OFF output devices? Explain any two in detail. [6]

OR

- Q2)** a) Define programmable logic controller and state the selection criteria for the same. [7]
- b) Draw the ladder diagram for the following function table [8]
- Inputs – I1, I2                      Outputs - Q1, Q2, Q3, Q4

I1	I2	Q1	Q2	Q3	Q4
0	0	1	0	0	0
0	1	0	1	0	0
1	0	0	0	1	0
1	1	0	0	0	1

- c) What is the effect of change in Ki and Kd parameters on the performance of PID controlled system? [7]

P.T.O.

- Q3)** a) Explain any two flow and level sensors. [8]  
b) How speed of the DC motor is controlled using PLC? Explain with the help of block diagram only. [8]

OR

- Q4)** a) Design traffic light controller using PLC ladder diagram. [8]  
b) Draw and explain AC motor overload protection. [8]

- Q5)** a) State and Explain different features of SCADA system. [8]  
b) Explain with block diagram use of SCADA in chemical plant. [8]

OR

- Q6)** a) Draw SCADA architecture and explain its important components. [10]  
b) What is Automatic Generation Control (AGC) and how it is achieved? Explain clearly the objectives of the system. [6]

- Q7)** a) Explain MODBUS model along with communication layers. [8]  
b) Explain IEC61850 layered architecture. [8]

OR

- Q8)** a) Write a short note on Profibus standard. [8]  
b) Write a short note on DNP3 protocol. [8]

