

Total No. of Questions : 8]

SEAT No. :

P3906

[5561]-576

[Total No. of Pages : 2

B.E. (Electrical)

PLC AND SCADA APPLICATIONS

(2015 Course) (Semester - I) (403142) (End Semester)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

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

- Q1)** a) Define Programmable Logic controller and explain its various types. [7]
- b) Explain ON/OFF output devices. [7]
- c) Explain UP/DOWN counter with RESET on ladder diagram and timing diagram. [8]

OR

- Q2)** a) Explain input and output module of Programmable Logic Controller. [7]
- b) Describe any one type of float switch used as a level sensor. [7]
- c) 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	1	0	0
0	1	0	1	1	0
1	0	0	0	1	1
1	1	1	0	0	1

- Q3)** a) Explain analog signal processing. Assume input 0 to 80 V AC, input module 0 to 5 V DC, 8 bit base. How 31 V AC input voltage is converted and scaled to CPU input register? [8]
- b) Explain "Adjust and Observe method" of PID tuning. [8]

OR

P.T.O.

- Q4) a)** Write short note on variable frequency drive. [8]
- b)** Explain temperature control using PLC with the help of block diagram only. [8]
- Q5) a)** Define the following terms : [8]
- i) SCADA.
 - ii) MTU.
 - iii) RTU.
 - iv) HMI.
 - v) SCADA desirable properties.
- b)** Explain three SCADA generations. [8]
- OR
- Q6) a)** Write a short note on Automatic Substation Control. [8]
- b)** Explain SCADA system application in Petroleum Refining Process. [8]
- Q7) a)** Write a short note on ControlNet protocol in detail. [8]
- b)** Explain DeviceNet protocol along with its communication layers. [8]
- OR
- Q8) a)** Explain Process Field Bus (Profibus) protocol. [8]
- b)** Explain MODBUS model. [8]

