Total No. of Questions : 8]

SEAT No. :

P3906

[Total No. of Pages : 2

[5561]-576
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]**