

Total No. of Questions : 12]

SEAT No. :

P3534

[Total No. of Pages : 2

[4959] - 1205

B.E. (Instrumentation & Control)

INDUSTRIAL AUTOMATION

(2012 Pattern) (Semester-II)

Time : 2 1/2 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume Suitable data if necessary*

Q1) Explain hybrid DCS with reference to automation pyramid. [7]

OR

Q2) Explain the general objectives of automation. [7]

Q3) Explain the role of LAS in foundation fieldbus network. [6]

OR

Q4) With respect to OSI model explain HART protocol. [6]

Q5) Develop ladder diagram for mixing of two liquids as per given sequence : [7]

When the start push button is pressed, the inlet valve A switches ON till the middle level sensor has not sensed the liquid. When middle level is sensed inlet valve B switches ON till the high level sensor has not sensed the liquid. Then the motor spins the stirrer for 10 seconds for mixing of both the liquids. After this drain valve switches ON and remains on till the low level is not reached.

OR

Q6) Explain the PID block used in PLC system. [7]

P.T.O.

- Q7)** a) Explain the PLC programming methods as per IEC 61131. [8]
b) Write the procedure for selection of analog I/O module for PLC [8]

OR

- Q8)** a) With some suitable example explain the “Sequential function chart”. [8]
b) Explain the procedure for interfacing a PLC with SCADA system using different communication protocols. [8]

- Q9)** a) Explain the hierarchical structure of DCS in detail. [10]
b) Explain in brief alarm management system used in DCS. [8]

OR

- Q10)** a) Explain the hierarchical structure of DCS in detail. [10]
b) List and explain at least four different function blocks available in DCS System. [8]

- Q11)** a) With the help of block diagram explain “Safety life cycle”. [8]
b) What is HaZOP? Also explain the procedure of it. [8]

OR

- Q12)** a) Write short note on “Safety Instrumented System”. [8]
b) What is Process Hazard Analysis (PHA)? How it is carried out? [8]

