GUJARAT UNIVERSITY

B.E. SEM-VII (Instrumentation and Control) Question Bank-2013

SUBJECT NAME: PROCESS CONTROL II (IC 702)

All questions carry equal marks (10 marks)

Q.1	Explain in Detail PLC Timers.
Q.2	Explain PLC scanning technique
Q.3	Draw PLC Ladder diagram to realize 4:1 Multiplexer.
Q.4	Compare PLC and DCS in detail.
Q.5	Draw PLC ladder diagram to realize two inputs EX-OR Gate and Write ladder program for it.
Q.6	Draw and explain functional block diagram of PLC. Discuss merits and demerits of PLC.
Q.7	Show how a timer can be used to turn a red light on for 2500ms when a NO start push button is pushed. The PLC timer tick is 10ms. A NC stop button resets the system.
Q.8	Explain in detail networking in PLC.
Q.9	Draw and explain PLC memory map.
Q.10	Explain PLC discrete A.C. I/O modules with neat schematic diagrams
Q.11	Explain in detail operation of PLC.
Q.12	Explain general PLC programming Procedures
Q.13	Is PLC fail safe? Justify your answer.
Q.14	Implement following Boolean functions using single LLD: F1 = ((A+B'+C)' + (A'BD')) F2 = ((AB'D')' + (ACD)') F3=F1 (XOR) F2
Q.15	What is the difference between relay diagram and ladder diagram?
Q.16	Explain regulatory and sequential control algorithm.
Q.17	Explain following PLC functions: (1) Basic COMPARE functions (2) TABLE-TO-REGISTER, BLOCK MOVE (3) BIT SET, BIT CLEAR, BIT FOLLOW (4) Any one MATRIX function
Q.18	Explain in Detail PLC counter
Q.19	Explain data transmission techniques used in Local Area Network
Q.20	Explain PLC processor in brief.
Q.21	A single push button is used to operate the motor. When it is pressed first time, the motor is turning ON and when pressed for second time, the motor turns off. Then the sequence should be repeated. Design ladder diagram for the same.
Q.22	Explain data acquisition and signal processing algorithm.
Q.23	Explain Central Computer Station of DCS.
Q.24	Explain user defined displays used in DCS.

Q.25	Explain OSI model for computer networks in brief.
Q.26	Explain hierarchical Database organization in brief with neat diagram
Q.27	Explain in detail architecture of Distributed control system and also mention its merits and demerits
Q.28	Describe DCS Field Station.
Q.29	Explain optimal and adaptive control in DCS.
Q.30	Explain various system elements of DCS.
Q.31	Explain transmission protocols used in DCS.
Q.32	Describe Application of DCS
Q.33	Explain database organization in details.
Q.34	Enumerate various Automation Functions of each level of DCS and explain those of any one level.
Q.35	Explain screen partition generally used in DCS.
Q.36	Explain Back – up concept of Direct Digital Control
Q.37	Explain general structure and Kernel structure of Real Time Operating System.
Q.38	Explain in Detail Data Logger
Q.39	Explain Data acquisition and signal processing algorithm.
Q.40	Explain in detail architecture of Supervisory control system and also mention its merits and demerits