

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 31662

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Sixth Semester

Instrumentation and Control Engineering

01UIC602 - LOGIC AND DISTRIBUTED CONTROL SYSTEMS

(Common to Electronics and Instrumentation Engineering)

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List out any four PLC input and output devices.
2. Compare T_{ON} and T_{OFF} timers.
3. List the sequence of operations carried out in PLC programming.
4. Mention any four real time applications of PLC.
5. Draw the general block representation of a computer control system.
6. Classify the types of stability analysis for sampled data control systems.
7. What is the need can be satisfied in designing an industrial grade LCU?
8. Mention the applications of DCS in rolling mills.
9. Differentiate between interchangeability and interoperability.
10. Define Interoperability.

PART - B (5 x 16 = 80 Marks)

11. (a) Describe the architecture of PLC with neat diagram in detail.

(16)

Or

(b) Draw the diagram of Programmable Logic Controller (PLC) for the following

(i) Input module

(ii) Output module

(iii) Input connection

(iv) Output connection

(16)

12. (a) (i) Describe the function of program control instructions and develop a program to illustrate their use. (8)

(ii) Compose how PC can be used as PLC. (8)

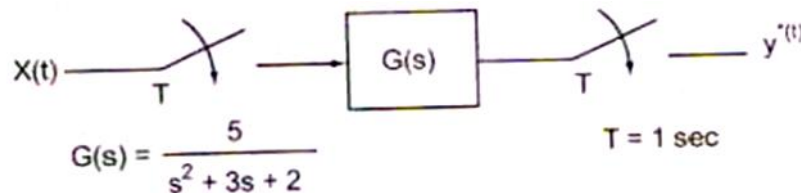
Or

(b) Describe the program control instructions of PLC with examples. (16)

13. (a) With neat diagrams, explain the open loop and closed loop sampled data control system in detail. (16)

Or

(b) Conclude the open loop response of the sampled data system shown in below to a unit step change in input $X(t)$. (16)



14. (a) Describe the architecture of Distributed Control System and its main sub-system. (16)

Or

(b) Explain the low level and high level operator interfaces of DCS in detail. (16)

15. (a) Illustrate in detail about the theory of operation of HART communication protocol. (16)

Or

(b) Describe the basic requirements of field bus standards. (16)