Reg. No. :

Question Paper Code: 36062

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. How do you choose the PLC for a particular application?

2. Compare T_{ON} and T_{OFF} timers.

3. Write a simple program using PLC to implement the EXOR logic gate.

4. Mention any four real time applications of PLC.

5. Differentiate between analog controller and digital controller.

6. Classify the types of stability analysis for sampled data control systems.

7. Compare individual, centralized and distributed control systems.

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)

(b) Summarize the functions of analogI/O module of Programmable Logic Controllers. (16)

12. (a) Describe the sequencer instructions of PLC with examples. (16)

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) Mention the necessary conditions and sufficient conditions for Jurry's stability test; check the satiability conditions with an example. (16)

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

Or

(b) With neat diagram explain the architecture of DCS in detail. List the advantages in control system applications. (16)

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

Or

(b) Brief about the field bus topology, with neat diagrams. (16)

_____

36062