Exam.Code:0936
Sub. Code: 6719

2014

B.E. (Electrical and Electronics Engineering)

Sixth Semester

EE-611: Programmable Logic Controller and Distributed Control System

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each section. All questions carry equal marks.

x-x-x

1)

a) What is sourcing and sinking in PLC.
b) State two ways in which I/O is incorporated into the PLC.
c) List different network topology used for DCS.
d) Define Scan type of PLC.
e) Explain the differences between open and proprietary PLC architecture.

Section A

2)

a) Explain in detail the factors responsible for difficulties encountered in implementation of process control.

b) Compare the PLC and PC with regard to:
   a. Physical hardware differences
   b. Operating environment
   c. Method of programming
   d. Execution of program

3)

a) Compare discrete and analog I/O modules with respect to the type of input or output devices with which they can be used.

b) Discuss Discrete AC input module with suitable diagrams.

4)

a) Draw and explain the connection diagram and ladder program for a motor control in forward and reverse direction with interlocking.

b) Answer the following with regard to a ladder logic rung:
   a. Describe the basic makeup of a ladder logic rung.
   b. How are the contacts and coil of a rung identified?
   c. When is the ladder rung considered as having logic continuity?.

P.T.O.

Section - B

5)

a) Draw and explain the hierarchy of DCS.

b) Draw and explain the ladder logic for program that uses a TON timer to illuminate a green pilot light for 20 seconds each time a momentary button is pressed.

6)

a) Construct a ladder diagram for traffic lights control with following sequence:
The timed sequence of the lights is:
- Red—30 s on
- Green—25 s on
- Amber—5 s on
- The sequence then repeats itself.

b) There are three machines, each with its own start stop buttons. Only one may run at a time. Construct a ladder diagram with appropriate interlocking.

7)

a) Explain a TOF delay timer.

b) Differentiate between data logging and data acquisition.

x-x-x