UJ – 112

# VII Semester B.E. (E&E) Degree Examination, June/July 2016
## (2K11 Scheme)
## EE-706.4 : PROGRAMMABLE LOGIC CONTROLLERS (Elective)

Time : 3 Hours Max. Marks : 100

***Instruction :*** *Answer* ***any five full*** *questions.*

1. a) List the major parts of a PLC system and describe the functions of each part with blocks. **12**

   b) What are the advantages of PLC over a Electro Mechanical relay system. **8**

2. a) List the five common types of PLC registers, describe how each of the five common types of PLC registers is used in PLC operation. **15**

   b) Differentiate data processing and a process control computer. **5**

3. a) Draw a Ladder diagram for a three motors system having the following conditions :

   Motor 1(M1) starts as soon as the start switch is ON, after 10 sec. M1 goes OFF and Motor 2 (M2) starts, after 5 sec M2 goes OFF and Motor 3 (M3) starts, after 10 sec, M3 goes OFF and M1 starts and cycle is repeated. **10**

   b) Explain the use of retentive timer instructions with example. **10**

4. a) Write the ladder diagram for elevator system for a 3 floor building. **10**

   b) Explain the master control reset instruction and write a program to use it. **10**

5. a) What is the need of automation in the Industry ? **5**

   b) Explain the operation of analog PLC. **5**

   c) Explain the different types of data. Compare instructions with example. **10**

6. a) With a block diagram, explain the generalized distributed control system architecture. **10**

   b) With a block diagram, explain the basic elements of a Microprocessor based controller. **10**

P.T.O.

7. a) Distinguish between Hybrid Architecture, central architecture and distributed architecture. **10**

   b) With the help of a block diagram, explain briefly CPU redundancy configuration. **10**

8. a) Explain field bus standardization. How field bus technology is different from 4–20 mn technology ? **10**

   b) Explain sellers layers of reference model for protocols used in communication network. **10**