JU – 843

VII Semester B.E. (E&E) Examination, January/February 2014
(2K6 Scheme)
EE 705 : PROGRAMMABLE LOGIC CONTROLLER (Elective)

Time : 3 Hours Max. Marks : 100

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

I. a) What is PLC ? Explain the elements of PLC with block diagram. **10**

b) What are the differences between PLC ad PC computer ? **4**

c) What are the advantages of PLC over electro Mechanical relay system ? **6**

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

b) Describe three basic elements of an D/O address used in Allen Bradley SLC – 5 PLC's **5**

III. a) Explain data file memory organisation for an Allen Bradley PLC – 5 Controller. **10**

b) Draw the ladder diagram for a three motor system having the following condition :

Motor 1(M_1) starts as soon as the start switch is ON, after 10 sec M_1 goes OFF and Motor 2 (M_2) starts, After 5 sec, M_2 goes OFF and Motor 3 (M_3) starts, After 10 sec, M_3 goes OFF and M_1 starts and cycle in Repeated. **10**

IV. a) Draw the PLC Ladder diagram for filling and packing operation of Bottles. **10**

b) Draw the PLC ladder diagram for controlling a traffic signal. **10**

V. a) State the need of automation in the Industry. **5**

b) Using function block approach explain a control strategy that integrates with continuous and logic control functions. **15**

VI. a) With a block diagram, explain the architecture of a generalized distributed control system which employ LCU's. **10**

b) What are the major principles to be followed in designing the manual backup capability for an LCU ? **10**

P.T.O.

VII. a) Explain briefly the various layers of a OSI (Open System Inter Connection) reference model. **10**

b) Explain field bus standardization. How field bus technology is different from 4 – 20 ma technology. **10**

VIII. Write short notes on : **(4×5=20)**

i) Analog PLC operation

ii) Retentive timers

iii) High level operater Interface

iv) PLC Installation.