EJ – 1347

# VII Semester B.E. (E & E) Degree Examination, June/July 2015
## (2K6 Scheme)
## PROGRAMMABLE LOGIC CONTROLLERS (Elective)

Time : 3 Hours Max. Marks : 100

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

1. a) Describe the general procedure to follow in using a PC and program disk system to program a PLC. **10**

   b) What are the advantages of PLC over relay logic in simpler construction diagram and wiring ? **10**

2. a) Explain program file memory organization for an Allen Bradley PLC-5 controller. **15**

   b) Describe 3 basic elements of an D/o addresses used in Allen Bradley SLC-5 PLC. **5**

3. a) Write a ladder diagram for domestic washing machine which includes rinse wash and dry functions. **10**

   b) Draw the PLC ladder diagram for controlling a traffic signal and the direction of traffic flow is in one direction. **10**

4. a) Explain retentive type timer function with suitable examples. **12**

   b) When push button PB5 is pressed, start mixes M1 and M2 at an internal of 30 seconds each. During this time gap, oven 01 and 02 are to be turned on stop the mixers when PB5 is switched OFF. Draw the ladder diagram for this condition. **8**

5. a) Using function block approach, explain a control strategy that integrates continuous and logic control functions. **12**

   b) Explain how field bus technology is different from 4-20 mA technology. **8**

P.T.O.

6. a) Write a block diagram, explain the architecture of a generalised distributed control system which employs LCUs. **12**

   b) What are the various factors that has to be considered for designing LCU ? **8**

7. a) Explain briefly various layers of a OSI reference model (Open System Interconnecting). **12**

   b) What are the major principles to be followed in designing the manual backup capability for an LCU ? **8**

8. Write short notes on :

   i) Trouble shooting and maintenance of PLC. **5**

   ii) Smart continuous control system. **5**

   iii) Low and high operator interface. **10**

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