1035

Code : 15MC51T

Register Number

V Semester Diploma Examination, Nov./Dec.-2018

PROGRAMMABLE LOGIC CONTROLLER

Time : 3 Hours] **[Max. Marks : 100**

PART – A

Answer any **six** questions. **5 × 6 = 30**

1. Compare Relay Logic Control and Programmable Logic Control. **5**

2. Explain the different types of output used in PLC. **5**

3. Construct the PLC ladder diagram for simple one contact, one coil circuit. **5**

4. Explain the addition arithmetic function with example. **5**

5. Explain basic compare functions. **5**

6. Explain up-down combination counter of PLC function. **5**

7. Explain high speed counter & counter with separate enable & reset function. **5**

8. Explain the operation of SKIP function. **5**

9. Explain the Block move functions. **5**

PART – B

Answer any **seven** full questions. **10 × 7 = 70**

10. Explain the working principle of PLC. 10

11. (a) Explain the different discrete input modules that can be interfaced with PLC.

(b) Write the advantages of using PLC. **5 + 5 = 10**

12. (a) Construct the PLC logic using ladder diagram for AND, OR, NOT logic gates.

(b) The process FAN is to run only when all the following conditions are met : **5 + 5 = 10**

(i) Input 1 is OFF.

(ii) Input 2 is ON or Input 3 is ON, or both 2 and 3 are ON.

(iii) Inputs 5 and 6 are both ON.

(iv) One or more of the inputs 7, 8 or 9 is ON.

13. Construct the PLC ladder and timing diagram to illustrate ON delay timer function for process control application. 10

14. Construct the PLC ladder diagram for repeat cycling timer function. 10

15. Construct a PLC ladder diagram to illustrate the combination of counter & timer function. 10

16. An output indicator is to go ON when 6 of Part C & 8 of Part D are on conveyer. IN002 & IN003 are proximity devices that pulse on when a part goes by them. Construct a PLC ladder diagram to illustrate the above scenario. 10

17. Explain shift left and shift right register functions with examples. 10

18. Applying the concept of shift registers, explain flashing arrow pattern & registers. 10

19. Explain PID module. 10