



CBCS SCHEME

15EE562

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Fifth Semester B.E. Degree Examination, June/July 2019

Programmable Logic Controllers

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With a neat block diagram, explain the function of PLC components. (08 Marks)
- b. Describe special I/O Modules of PLC. (08 Marks)

OR

- 2 a. Write a neat diagram of PLC processor module and explain three modes of operation. (05 Marks)
- b. Explain relay type instructions with ladder diagram and truth table. (06 Marks)
- c. Write a short note on language associated with PLC programming. (05 Marks)

Module-2

- 3 a. Write a PLC program used to implement control of water level in a storage tank and explain the sequence of operation. (08 Marks)
- b. Describe the method of operation of manually operated, mechanically operated and proximity switches. (08 Marks)

OR

- 4 a. Draw the symbol and explain the operation of on delay and off delay timers contacts of mechanical timing relay. (08 Marks)
- b. Write a PLC program for the control of traffic lights in one direction and explain the sequence of events involved. (08 Marks)

Module-3

- 5 a. Write a PLC program to illustrate 24 hour clock, measuring time in hours and minutes and explain the operation. (08 Marks)
- b. Describe the instructions and commands used in counter file. (08 Marks)

OR

- 6 a. Write a program flow of nested subroutine form the main program to subroutine files and explain the operation. (08 Marks)
- b. Write a PLC program for safety wiring requirements during PLC installation and summarize the sequence of events involved. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. Write a PLC program using MOV instruction used to change the preset count of counter and explain the operation. (08 Marks)
- b. With a neat diagram explain BCD output interface module connected to a seven segment LED display board. (08 Marks)

OR

- 8 a. Write a PLC program using MUL (multiplication instruction) used as a part of temperature control program. (08 Marks)
- b. Describe other word level math instructions used in PLC programming. (08 Marks)

Module-5

- 9 a. Describe the sequencer instructions and commands used in PLC. (08 Marks)
- b. Describe spray painting operation controlled shift left register and write a PLC program for the same. (08 Marks)

OR

- 10 a. Explain the major components of a process control system involved in the structure of control system. (08 Marks)
- b. With a neat diagram, explain signal sources and o/p loads of SCADA. (08 Marks)
