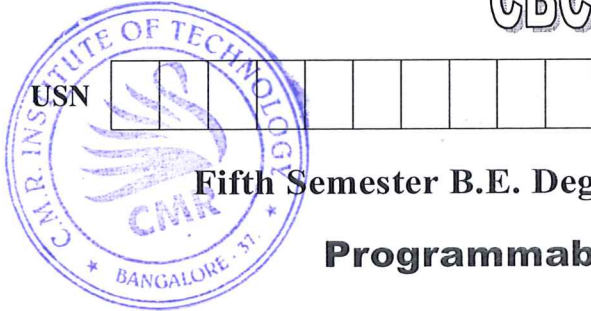


CBCS SCHEME



15EE562

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)

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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)
