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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(Automation & Robotics) (Sem.-7)**  
**PROGRAMMING INDUSTRIAL AUTOMATION SYSTEMS**  
**Subject Code : BTAR-702**  
**M.Code : 71807**

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Q1 Write briefly :**

- a) What are continuous sequential processes?
- b) What is the use of ladder logic methodology?
- c) Write the merits of PLC.
- d) Write the advantages of relay logic.
- e) What is the application of ladder diagram?
- f) What is latching?
- g) Write addition function.
- h) What is the function of on-delay timers?
- i) What is NOT function?
- j) What are convert functions?

### SECTION-B

2. Discuss the various process variables.
3. What is the function of relays? Write its different types.
4. Compare the on-delay and off-delay timers.
5. Discuss the data moves instructions.
6. Explain AND and OR function with suitable example.

### SECTION-C

7. Discuss the PLC architecture and explain its input and output module.
8. Write notes on :
  - a) Up-counter
  - b) Down-counter
9. Explain the PLC FIFO and LIFO functions.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**