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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(Automation & Robotics) (2011 Batch) (Sem.-7,8)**  
**PROGRAMMING INDUSTRIAL AUTOMATION SYSTEMS**  
Subject Code : BTAR-702  
Paper ID : [A2919]

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****1. Write briefly :**

- a. Name different process variables.
- b. For timer draw symbol used in ladder logic.
- c. What are different compare functions?
- d. Define STL.
- e. Write short note on interlocking function of PLC.
- f. What do you understand by FIFO?
- g. Name different types of counters.
- h. What type of arithmetic's are not performed by PLC?
- i. Write some additional capabilities of a PLC.
- j. Draw symbol for NOT function with its truth table.

### SECTION-B

2. With example illustrate ladder logic diagram.
3. What are the unit operations in the discrete process? How it is different from continuous process?
4. Write briefly about i) ladder logic methodology and ii) Bit logic instruction.
5. What are the IEC61131 international standard for PLC?
6. How does PLC interfacing is done with plant?

### SECTION-C

7. Discuss in detail with example about creating ladder diagram from process control descriptions.
8.
  - a) What are advantages and disadvantages of PLC with respect to relay logic?
  - b) What data move instructions are followed in PLC data handling?
9. Write briefly about following :
  - a) Up-down counter
  - b) Input Output modules.