MBS-003-1154001 Seat No. _____

M. Sc. (ELE) (Sem. IV) (CBCS) Examination

April / May - 2018

Automation With PLC & SCADA : Paper-13

Faculty Code : 003
Subject Code : 1154001

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

1 Answer the following questions in brief : (any **Seven**)   **14**
1. Explain basic operation of PLC.
2. Enlist advantages of PLCs over electro-mechanical relay systems.
3. Briefly describe power supply for PLC.
4. Enlist applications of PLC.
5. Mention the three major steps of creating new project.
6. Give SAP explanation of switching ON/OFF a light.
7. What are the display type options available with RSView32 ?
8. How an Arrow can be animated ?
9. Describe animation configuration of horizontal position.
10. Describe animation configuration of vertical position.

2 Attempt any **two** of the following questions : (Each **7** Marks) **14**
1. Draw the architecture of a typical PLC and describe its processor and memory in detail.
2. What is importance of file structure ? Explain file structure for output, input, status and bit data files.
3. A bottling plant has following specifications :
    1. It works in Manual as well as Auto modes
    2. In manual mode the conveyor, filling and capping is done manually. While filling and capping conveyor must be stopped. Manual inputs I:1/1, I:1/2, I:1/3, I-.1/4, & I:1/4 are Auto/Manual selection, Conveyor Start, Conveyor Stop, Filling Sensor and Capping Sensor respectively.

3. In Auto mode the conveyor should stop on detecting Filling Sensor and Capping Sensor for filling and capping.

4. Filling has to be done for a time of 10 seconds.

3 Answer the following questions :

1. Give a detailed account on PLC programming languages. **5**

2. Enlist and explain all bit instructions with suitable examples. **5**

3. Write a ladder program for Traffic Light control. **4**

OR

3 Answer the following questions :

1. Describe animation configuration of width & height. **5**

2. Write a detailed note on numeric input. **5**

3. Write a ladder program for main door which is opened with 4-digit code from outside or with a switch from inside for 10 seconds. After 10 seconds it will warn with a buzzer if the door is still open. **4**

4 Answer the following questions :

1. Enlist steps to create device tag. **5**

2. A car parking is having space for 20 cars and separate entry and exit. System has to count cars getting in/out and should allow cars to aet in only if space is available. Write a ladder program for smooth operation of parking system. **5**

3. Write a short note on programming devices for PLC. **4**

5 Answer any **two** of the following questions. (Each **7** Marks) **14**

1. Give a detailed account on timer instructions.

2. Write a detailed note on basic control system components and their symbols.

3. Describe project creation using memory tags.

4. Explain in detail comparison instructions.

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