Question Bank (G scheme)

Name of subject: INDUSTRIAL AUTOMATION

Subject code : 17664 **Unit Test :I**

Semester :VI **Course : IS/IE**

CHAPTER 1INTRODUCTION TO AUTOMATION

3 Marks

1. Give the definition of Automation
2. What is need of Automation?
3. Explain the types of Automation.
4. Describe the role of PLC in automation
5. List different automation tools used in process state any one need in process.

4 Marks

6. Give benefits of automation.

CHAPTER 2 PLC FUNDAMETALS

3 Marks

7. Give advantages of PLC over relay logic.
8. Draw block diagram of PLC
9. Explain the function of the following components of PLC. (Any one).
   (a) Power Supply
   (b) Memory
   (c) I/P modules
   (d) o/p modules
   (e) CPU

4 Marks

10. Describe the evolution of PLC in automation.
11. Classify & explain the types of PLC.
12. Draw& explain block diagram of PLC
13. Explain the term redundancy in PLC.
14. Name the specialty modules & explain any two
15. Explain the terms
    1. SCAN time 2. Speed of execution

CHAPTER 4 PLC INSTRUCTION SET

3 Marks

16. Explain the following with truth table, ladder diagram (any one)
    a. **EX OR**
    b. **EX NOR**
    c. **AND**
    d. **NAND**
    e. **NOR**
    f. **OR**
    g. **NOT**

4 Marks

17. Explain the timer instruction format (any one)
    a. **ON delay timer**
    b. **OFF delay timer**
    c. **RTO delay timer**
18. Explain the comparison instruction format.
19. Explain the PID & sequencer instruction format.
20. Explain the data handling instruction format.

CHAPTER 5 PLC PROGRAMMING & APPLICATION

3 Marks

21. Draw & explain (any one)
    a. **1:4 De multiplexer**
    b. **4:1 multiplexer**

22. Draw ladder diagram of following expressions
    (I1.I2)+I3+I4+ (I5.I6)

23. Draw ladder diagram of following expressions
    A$\bar{B}$C+EF=Y1
    PQ+$\bar{R}$+S=Y2
    Y1.Y2=Y3
24. Draw the ladder diagram for following condition
    As start switch is pressed then M1should start.as M1 start green light should ON, as stop switch pressed M1 should off & red light should ON.

4 Marks

25. The tank filling system having two sensors low level & high level having following condition
    1. when low level sensor is sensed then motor pump will turn ON
    2. When high level sensor is sensed then motor pump will turn OFF.

26. Program list (any one)

    a. Draw the ladder diagram for

    1. **Switch on o/p 5 sec, after receiving i/p & keep it on for duration of that input.**

    2. **Switch on an o/p for the duration of i/p & then keep it on for further 5 sec**

    b.There are 4o/ps: A, B, C, & D.Once switch turns ON all the o/p will be turn ON. A stop immediately when stop switch pressed. B stops 4 sec later A. C stops 6 sec later than A, D stops 1.8 sec after B.