**Question Bank (I scheme)**

**Name of subject : CONTROL SYSTEM AND PLC**

**Subject code : 22531 Unit Test : II**

**Semester : 5 Course :EJ5I**

**Chapter 4 –Fundamentals of PLC (14 marks)**

**2 Marks:**

1. State advantages of PLC.
2. List two types of PLC programming devices.
3. Draw PLC Scan Cycle.

**4 Marks:**

1. What is PLC? State the need of PLC in automation.
2. Draw neat block diagram of PLC. Describe the function of each block.
3. List the input and output device used with PLC with their functions.
4. Define the following terms related to PLC:

 a) Scanning cycle b) Scanning

 c) Scan time d) Speed of execution

 8) Draw and explain fixed PLC and modular PLC.

 9) Compare between relay logic controller and PLC.

 10) State stepwise procedure of PLC installation.

 11) Justify ‘Modular PLCS are preferable in automation industry.

 12) Describe memory organization of PLC.

**Chapter 5 – PLC Hardware and Programming ( 18 marks)**

**2 Marks:**

 13) What is ladder programming? Enlist advantages of ladder programming.

 14) Explain the terms normally open and normally closed contact.

 15) Draw electrical symbol used to represent NO pushbutton, NC pushbutton.

16) Draw the ladder diagram to verify:

 i) NAND gate ii) NOR Gate logic.

**4 Marks:**

17) Draw and describe block diagram of discrete AC input module .

18) Draw and describe block diagram of discrete AC output module.

19) List specification of discrete DC and AC input module.

20) Explain sourcing and sinking concept in DC input module.

21) Write the program for

 i) De’morgans first and second theorem in ladder programming.

ii) Write ladder program for multiplexer.

iii) Ladder diagram for following Boolean equation

 y1 = A + B + C . D + E

 y2 = (F . G .H ) + I

 Q = y1 . y2

22) Draw ladder diagram for 3 motor operation for following conditions

i. Start push button starts motors M1 and

ii. after 10 seconds motor M2 starts and

iii. after 10 seconds motor M3 starts

23) List any four compare instructions of PLC.

24) State four points of information associated with a counter instruction of PLC.

25) State four points of information associated with a timer instruction of PLC.