NETTUR TECHNICAL TRAINING FOUNDATION

DIPLOMA IN MECHATRONICS ENGINEERING & SMART FACTORY – CP15

IV SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-JULY 2023

Subject: Programmable Logic Controller-I **Total Time: 2 Hr.**

Subject Code: CP15404T **Total Marks: 50**

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING **2*8=16**

1.1 Write a short notes on importance of PLC role in automation.
1.2 List out the different types of programming languages in PLC
1.3 Write any 4 digital input device names.
1.4 Draw a PLC ladder diagram for OR gate with truth table.
1.5 What is a register? List out the different registers in PLC.
1.6 Draw the block format of timer and label it.
1.7 List the various types of comparison functions in PLC.
1.8 Brief JUMP instruction. Mention the types.
1.9 Mention the functions used for changing the BIT STATUS
1.10 List out the types of shift register functions

2.0 ANSWER ANY SIX OF THE FOLLOWING **3*6=18**

2.1 List out the advantages and disadvantages of PLC
2.2 Mention proper construction format of ladder diagram with example diagrams.
2.3 Draw the PLC ladder diagram for Motor forward-reverse with mutual interlock
2.4 Explain PLC input group register
2.5 List the types of counters and explain any one
2.6 Write the difference between SKIP and MCR function
2.7 Mention 3 types of data movement instructions
2.8 Explain PLC input module with neat sketch.

3.0 ANSWER ANY FOUR OF THE FOLLOWING **4*4=16**

3.1 Explain each part of PLC with the block diagram
3.2 Define Register to Table & Table to register function.
3.3 Mention different types of timers based on inputs and explain each with example
3.4 Explain block transfer function in PLC
3.5 Draw the ladder diagram for universal gates.
3.6 List the factors considered while selecting a PLC

NETTUR TECHNICAL TRAINING FOUNDATION

DIPLOMA IN MECHATRONICS ENGINEERING & SMART FACTORY – CP15

IV SEMESTER SUPPLEMENTARY EXAMINATION-JULY 2023

Subject: Industrial Electronics **Time: 2 Hr.**

Subject Code: CP150401 **Marks: 50**

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING **2*8=16**

1.1 List out any four PPEs

1.2 Describe Power Diode

1.3 Define softness factor.

1.4 List out some of the controlled power devices.

1.5 Draw single phase half wave rectifier circuit.

1.6 Write short notes on firing angle or triggering angle of an SCR.

1.7 List out the types of DC-DC converters.

1.8 Write a short notes about snubber circuit

1.9 Give the concept of thermal resistance.

1.10 Write short notes on EMC

2.0 ANSWER ANY SIX OF THE FOLLOWING **3*6=18**

2.1 Write the first aid steps taken when a person got heart attack.

2.2 Define reverse recovery time.

2.3 Draw the symbol of POWER MOSFET and name its terminals

2.4 Define Holding & Latching current

2.5 What do you mean by duty cycle?

2.6 Write the importance of heat sink in a circuit.

2.7 Draw the block diagram of DC Drive.

2.8 With a neat sketch explain about linear power supplies.

3.0 ANSWER ANY FOUR OF THE FOLLOWING **4*4=16**

3.1 Explain the term 5S.

3.2 List out the applications of power electronics.

3.3 Draw and explain the switching characteristics of power BJT

3.4 Explain the function of freewheeling diode in rectifier.

3.5 Explain the working of buck converter with the help of a neat diagram

3.6 Explain about PMDC motor with neat sketch.