

NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN MECHATRONICS ENGINEERING & SMART FACTORY-CP15
V SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-JAN 2023

Subject: Advanced PLC
Subject Code: CP15502T

Total Time: 2 Hr.
Total Marks: 50 Marks

PART B

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

- 1.1 What is bit and byte in PLC?
- 1.2 What is the role of shunt resistor in PLC analog module?
- 1.3 What is Rungs in Ladder diagram?
- 1.4 Draw the function block diagram of AND logic operation
- 1.5 What is USB-PPI adapter?
- 1.6 What is electromagnetic interference in PLC?
- 1.7 Define HMI
- 1.8 What are the basic components of a DCS network?
- 1.9 List the applications of SCADA System
- 1.10 What are the preventive measures to be taken to avoid the possibility of power failure?

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

- 2.1 Explain 2 Wire analog input connection with neat sketch
- 2.2 What are the advantages of Structured Text?
- 2.3 Write down the three different types of addresses of Profinet devices
- 2.4 How to avoid communication failure in PLC?
- 2.5 Explain about Alarm messaging
- 2.6 List any 6 features of SCADA system
- 2.7 Explain the working of PLC A/D converter with neat sketch
- 2.8 List the difference between DCS & PLC

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

- 3.1 Explain 4 Wire analog input connection with neat sketch
- 3.2 What are the different symbols used in Ladder diagram? Explain any one.
- 3.3 Draw and explain about the architecture of DCS
- 3.4 List any 10 different types of communication protocols used for automation processes in PLC
- 3.5 What is OPC Server? Write the advantages of OPC server
- 3.6 Explain the four different types of SCADA systems from four generations?

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V SEMESTER SUPPLEMENTARY EXAMINATION-JAN 2023

Subject: Programmable Logic Controller
Subject Code: CP15 05 04

Total Time: 2 Hr.
Total Marks: 50 Marks

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING

2*8=16

- 1.1 Define Scan Time
- 1.2 Briefly explain terms NO, NC with symbols.
- 1.3 Draw the ladder diagram for two input OR gate with truth table.
- 1.4 What is a register? List out different registers in PLC
- 1.5 List out types of PLC arithmetic functions.
- 1.6 List out the different types of programming languages available in PLC
- 1.7 Explain the use of FAL function
- 1.8 Mention the role of Profi bus in PLC.
- 1.9 List any 4 applications of HMI
- 1.10 List out the Functions of SCADA.

2.0 ANSWER ANY SIX OF THE FOLLOWING

3*6=18

- 2.1 Explain input module with neat sketch.
- 2.2 Draw the PLC ladder diagram for Motor forward-reverse with mutual interlock
- 2.3 Explain PLC input group register
- 2.4 List the types of counters and explain any one
- 2.5 Write the difference between SKIP and MCR function
- 2.6 Explain the function which eliminates the effect of spikes from contact bounce.
- 2.7 List any 3 Analog input and output devices each.
- 2.8 Explain HMI interfacing with block diagram.

3.0 ANSWER ANY FOUR OF THE FOLLOWING

4*4=16

- 3.1 Explain each part of PLC with the block diagram.
- 3.2 Draw the ladder diagram for universal gates.
- 3.3 Define Register to Table & Table to register function.
- 3.4 Explain the components of SCADA with a block diagram.
- 3.5 List the types of shift register for shifting a data in PLC and Explain.
- 3.6 Draw a ladder and PLC connection diagram to run a paint spray for 25 seconds, after a count of 10 from a sensor.

