

DIPLOMA OF VOCATION
Industrial Electronics
Subject: Programmable Logic Controller
Subject Code: EDPL-305
Semester: Fifth
January 2021
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number											

SECTION –A (OBJECTIVE TYPE QUESTIONS)

(10x1=10 Marks)

- A. PLC is an event-driven device. True/False? Justify your answer.
- B. What is the main purpose of one shot in PLC programming?
- C. What is interlocking in PLC programming?
- D. What is SFC for PLC?
- E. Master control relays turn ON and OFF power to certain logic rungs. True/False?
- F. When is the overflow bit of an up-counter set?
- G. What is the main advantage of the jump instruction?
- H. The CPU of PLC consists of _____.
- I. Which programming language(s) is(are) used in PLC?
- J. What is SCAN in PLC?

SECTION -B (ESSAY TYPE QUESTIONS)

(5x5=25 Marks)

1. List the advantages of PLC control over hardwired relay control.
2. Describe the function of a PLC digital input module, digital output module, and the power supply.
3. Explain the difference in operation among the following instructions:
XIC, XIO, OTE, OTU, and OTL.
4. Explain the main units of a PLC with the help of a block diagram.
5. Create a ladder-logic program for the following Boolean equation:
 $SV = (SW1+SW2) (SW3)$ where SV is a solenoid valve, and SW1, SW2, and SW3 are three ON/OFF switches.
6. Explain the On-Delay timer (TON) and retentive timer (TONR) instructions and the difference between these two instructions.
7. Draw the ladder diagrams for NAND logic and RS flip flop.
8. Describe the major considerations for selecting a PLC.

*******END OF PAPER*******