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BBA-003-1154001 Seat No. _____

M. Sc. (CBCS) (Sem. IV) Examination

July - 2021

Electronics : Paper - 13

(Automation with PLC & SCADA) (New Course)

Faculty Code : 003

Subject Code : 1154001

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) Answer any five out of ten questions.
(2) Figures on right hand side indicate marks.

1 Answer the following. **14**

(1) Define PLC.
(2) What is a shoe box PLC?
(3) Draw and explain ground test circuit.
(4) What types of memory might a PLC contain?
(5) What is a two-hand operation of PLC?
(6) What is the purpose of the control transformer in control system?
(7) What is the purpose of programing unit?

2 Answer the following. **14**

(1) Draw the NAND gate ladder logic diagram.
(2) What is meaning of TR, F, PB and SS in PLC?
(3) List the name of PLC input and output devices.
(4) Draw basic framework diagram of the PLC.
(5) Give full form of given reference designators.
- OL
- CB
- M
- L

(6) List four types of I/O modules?
(7) What is the purpose of the shrouded pushbutton actuator?

3 Answer the Following. **14**

(1) Write a note on delay-off and delay-on timer relay.

(2) Draw and explain control transformer and fuse of the ladder diagram.

4 Answer the Following. **14**

(1) Write a note on pushbutton and pushbutton actuator switches.

(2) Draw and describe Relays.

5 Answer the Following. **14**

(1) Draw and explain following switches in brief.

- Limit switch
- Selector switch
- Mushroom head switch

(2) Draw and discuss an anti-tie down and anti-repeat operation of machine control.

6 Answer the following. **14**

(1) Draw and write about AND-OR and OR-AND logic circuit diagram with appropriate ladder logic diagram.

(2) Draw and explain system block diagram of the PLC.

7 Answer the following. **14**

(1) Write a note on latching contacts and explain with its suitable diagram.

(2) Draw and explain single cycle operation of machine.

8 Answer the following. **14**

(1) Explain various types of machine control terminology.

(2) Write a note on majority circuit with suitable example.

9 Answer the following. **14**

(1) Write a note on oscillator circuit in the PLC.

(2) Draw and explain R-S flip flop.

10 Answer the following. **14**

(1) Write a note D flip flop and T flip-flop.

(2) Draw wiring diagram and programing rung diagram for AND-OR logic.
