



**PAS-003-1276003**

Seat No. \_\_\_\_\_

**M. Sc. (ECI) (Sem. VI) (CBCS) Examination**

**August / September - 2020**

**Paper - 23 : Basic Programmable Controllers**

**Faculty Code : 003**

**Subject Code : 1276003**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :** (1) All questions carry equal marks.  
(2) Figures on right hand side indicate marks.

**1 Answer the following : (Any Seven) 14**

- (1) Define PLC.
- (2) Draw Electrical symbols of maintained switch and mushroom head switch.
- (3) What is use of limit switch in control system of PLC?
- (4) Give the full form of following reference designators :
  - LS
  - PB
  - SS
- (5) Draw NAND and NOR ladder logic diagram.
- (6) Enlist applications of PLC.
- (7) List the name of PLC input and output devices.
- (8) Define ON, OFF and RUN machine control terminologies.
- (9) What is a two-handed operation of PLC?
- (10) What is the purpose of the control transformer in control system?

**2 Answer the following : (Any Two) 14**

- (1) Write a note on delay-off timer relay. 7
- (2) Draw and explain optical proximity sensors. 7
- (3) Draw and explain Boolean and relay logic of OR gate. 7

- 3** Answer the following : **14**
- (1) Draw and describe Relays. **7**
  - (2) Write a note on pushbutton and pushbutton actuator switches. **7**
- OR**
- 3** Answer the following : **14**
- (1) Write a note on AND-OR and OR-AND ladder logic diagram. **7**
  - (2) Write a note on the latch with sealing contacts. **7**
- 4** Answer the following : **14**
- (1) Draw and explain inductive proximity sensors. **7**
  - (2) Draw and discuss an anti-tie down and anti-repeat operation of machine control. **7**
- 5** Answer the following : (Any **Two**) **14**
- (1) Draw and explain optical proximity sensors. **7**
  - (2) Write a note on T flip flop. **7**
  - (3) Write a note on D flip flop. **7**
  - (4) Explain STOP, JOG, INCH and CYCLE machine control terminology. **7**
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