

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VIII • EXAMINATION – SUMMER 2014

Subject Code: 182403**Date: 27-05-2014****Subject Name: Industrial Automation****Time: 10:30 am TO 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Draw PLC system layout & explain the merits of PLC over conventional relay logic. **07**
(b) Draw internal block diagram of PLC CPU and explain various blocks. **07**
- Q.2** (a) Describe PLC scanning considerations in detail. **07**
(b) Explain various input analog and ON / OFF devices which can be used with PLC. **07**
- OR**
- (b) Describe PLC I/O blocks with necessary diagrams. **07**
- Q.3** (a) Explain various output analog and ON / OFF devices which can be used with PLC. **07**
(b) Draw typical Input and Output scheme for PLC. **07**
- OR**
- Q.3** (a) Explain PLC move function and its application. **07**
(b) Use start, stop, forward, reverse push buttons as input and control a dc motor in forward and reverse direction. **07**
- Q.4** (a) Explain PLC skip function with suitable ladder logic diagrams. **07**
(b) Explain standard start ,stop and jog operation by PLC connection diagram and ladder logic. **07**
- OR**
- Q.4** (a) Explain input and output group registers of PLC. **07**
(b) Draw and explain ON Delay and Off-Delay timer ladder diagrams. **07**
- Q.5** (a) When the lights are turned off in a go-down ,an exit door light is to remain on for an additional 42 seconds. In addition , the parking plot lights are to be remain on for an additional 3 minutes after the door light goes out. Assume suitable input & outputs and make ladder logic for the above requirement. **07**
(b) Explain Up, Down and combinational counter operation. **07**
- OR**
- Q.5** (a) Explain about PLC arithmetic functions. **07**
(b) Explain about DCS, its functions, advantages & limitations. **07**
