

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 171702****Date: 31/12/2012****Subject Name: Programmable Automation Controller****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) Discuss advantages and disadvantages of a PLC. **07**
(b) Explain PLC CPU power supply with diagram. **07**
- Q.2** (a) Explain PLC scanning in detail. **07**
(b) Discuss any two analog output devices. **07**
- OR**
- (b) Explain PID module with block diagram. **07**
- Q.3** (a) Explain fail safe system with example. **07**
(b) A tube is to be started and stopped from three locations. Each location has a start and a stop button. A master stop is used to disable all starts. Prepare a PLC ladder diagram and explain it. **07**
- OR**
- Q.3** (a) Explain SHIFT REGISTER RIGHT and REGISTER ROTATE functions. **07**
(b) Explain basic two axis robot with PLC sequencer control. **07**
- Q.4** (a) Convert following word description to Gate symbols and PLC/ladder Diagrams, and explain. **07**
“For output H to be on, input A must be on and both inputs C and D must be off. In addition, one or more of inputs E,F and G must be off.”
(b) Explain general characteristics of PLC registers and their types. **07**
- OR**
- Q.4** (a) Explain PLC MOVE function with examples. **07**
Q.4 (b) Discuss PLC FIFO function with example. **07**
- Q.5** (a) Prepare a PLC program and explain it for the following : **07**
“There are four outputs: R,S,T and U. R starts immediately when an input is energized. S starts 4 second later. T starts 5 seconds later than S. U goes on 1.9 seconds after S. One switch turns all output off.”
(b) Discuss PLC multiplication and square root functions . **07**
- OR**
- Q.5** (a) Discuss PLC LIM function with an example. **07**
(b) Explain PLC SKIP function with an application. **07**
