

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 163405****Date: 26-05-2014****Subject Name: Mechatronics****Time: 10:30 am - 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) Explain open & closed control system with block diagram. **07**
(b) Explain the design process of a Mechatronic system. **07**
- Q.2** (a) Explain LVDT with neat sketch. **07**
(b) Explain Strain Gauge Load Cell. **07**
- OR**
- (b) Explain Thermocouple and Bimetallic strip. **07**
- Q.3** (a) Name different types of control modes and explain two step mode. **07**
(b) Explain Hydraulic mechanical system as system model. **07**
- OR**
- Q.3** (a) Explain Brush type DC motor with field coils and its types. **07**
(b) Explain Belt and Chain drives. **07**
- Q.4** (a) Explain Proportional control mode in details with diagram. **07**
(b) Explain Data handling in PLC. **07**
- OR**
- Q.4** (a) Explain Derivative control mode in details with diagram. **07**
(b) Explain Different logic functions used in PLC. **07**
- Q.5** (a) Explain Timers and Counters in PLC. **07**
(b) Short note on car engine management system. **07**
- OR**
- Q.5** (a) Explain Basic PLC structure in details with figure. **07**
(b) Pick and Place robot in details. **07**
