

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – WINTER • 2014****Subject Code: 163405****Date: 03-12-2014****Subject Name: Mechatronics****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

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

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|------------|------------|--|-----------|
| Q.1 | (a) | Explain the open & closed loop control system with block diagrams. | 07 |
| | (b) | Explain LVDT with diagram. | 07 |
| Q.2 | (a) | Name types of stepper motors. And explain any two with diagram. | 07 |
| | (b) | Explain belt and Chain drives. | 07 |
| | | OR | |
| | (b) | Explain brush type DC motors with field coils and its types. | 07 |
| Q.3 | (a) | Name different types of control modes and explain 2 step mode. | 07 |
| | (b) | Explain derivative control modes in detail with diagram. | 07 |
| | | OR | |
| Q.3 | (a) | Explain Hydraulic mechanical system as system model. | 07 |
| | (b) | Explain PID control. | 07 |
| Q.4 | (a) | Explain Different logic function used in PLC. | 07 |
| | (b) | Explain data handling in PLC. | 07 |
| | | OR | |
| Q.4 | (a) | Explain Input/output processing in PLC. | 07 |
| | (b) | Explain Basic PLC structure in details with figure. | 07 |
| Q.5 | (a) | Short note on Car engine management system. | 07 |
| | (b) | Explain Hard disk Drive system in details. | 07 |
| | | OR | |
| Q.5 | (a) | Explain various stages in Mechatronics system design. | 07 |
| | (b) | Short note in Automatic Car Parking system. | 07 |
