

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-IV Remedial Examination Nov/ Dec. 2010

Subject code: 142002

Subject Name: BASIC MECHATRONICS

Date: 08 /12 /2010

Time: 03.00 pm – 05.30 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 the term ‘mechatronics’ with suitable examples. Also state the advantages & disadvantages of mechatronics system. **07**
(b) Explain memory of Microprocessor in detail. **07**
- Q.2** (a) What is a fluid power system? Explain any one fluid power system with its working and elements. **07**
(b) What are sensors & transducers? Explain photo voltaic cells. **07**
- OR**
- (b) Explain any two of proximity sensors with neat sketch. **07**
- Q.3** (a) Derive equation used to make simulink model of DC shunt motor. **07**
(b) Explain ward Leonard drive & four quadrant operation of motor. **07**
- OR**
- Q.3** (a) What is ‘measurement system’? Explain its elements with example and applications. **07**
(b) Define: (1) Span **07**
(2) Range
(3) Deadzone.
- Q.4** (a) Explain single phase induction motor. How it is made self starting? **07**
(b) Give details about Bipolar Transistors with their characteristics. **07**
- OR**
- Q.4** (a) Explain feedback control methods. **07**
(b) Explain accuracy & precision with suitable examples. **07**
- Q.5** (a) Give the comparison of belt drive & gear drive with suitable applications, advantages & disadvantages. **07**
(b) What is meant by 4/2 DCV and 4/3 DCV? Explain with sketch & symbol used. **07**
- OR**
- Q.5** (a) Write a short note on motion sensors. **07**
(b) Compare conventional system of manufacturing with NC and CNC system. **07**
