| Seat No.: Enrolment No |
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – WINTER 2015

| Su | ıbjeci | t Code: 172005 | Date:04/12/2015 | |
|------------|-------------|--|---------------------|----------|
| Su | ıbjeci | t Name: Robotics (Department Elective-I) | | |
| Ti | me: 1 | 10:30am to 1:00pm | Total Marks: 70 | |
| | structio | ons: | | |
| | 1 2 3 | ı v | | |
| Q.1 | (a) | (1)Explain second order systems with example.(2) Describe in brief about artificial intelligence. | | 04 |
| | (b) | What are types of motion control? Explain any one in detail. | | 07 |
| Q.2 | (a) | Draw and Explain feed forward and feed back control loops | | 07 |
| | (b) | Explain open and closed loop control systems in robots. | | 07 |
| | (b) | OR Describe in brief about tachometer with figure. | | 07 |
| Q.3 | (a) (b) | Classify the external sensors and explain acoustic and strain Explain following terms for robotic sensors: (1)synchros (2) Limit switches (3) potentiometers | sensing in detail. | 07 07 |
| | | OR | | |
| Q.3 | (a) (b) | Write a short note on robot kinematics. Write D-H notation for robots and define homogeneous trans | asformation matrix. | 07 07 |
| Q.4 | (a) (b) | Write a short note on PID control of robots Describe principle function of robot vision system. | | 07 07 |
| | | OR | | |
| Q.4 | (a) | Explain GANTRY robots in detail. | | 07 |
| | (b) | Explain different types of programming methods in robotics. | | 07 |
| Q.5 | (a) (b) | Discuss capacitive and laser sensing Describe in brief about servo robot systems. | | 07 07 |
| | | OR | | |
| Q.5 | (a) | Describe gripper design consideration in robotics. | | 07 |
| - | (b) | Write a short note on teach pendant programming. | | 07 |
