

IV B.Tech II Semester Supplementary Examinations, Apr/May 2006
ROBOTICS AND AUTOMATION
(Common to Electronics & Instrumentation Engineering and Bio-Medical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Classify the robots based on their different configurations and discuss their applications and limitation. [16]
2. (a) Explain the various capabilities and limitations of the robot languages. [8]
(b) Discuss critically Asimov's laws of Robotics with illustration. [8]
3. What are the different types of electric drives used in the robots? Describe them with the help of neat sketches. [16]
4. Discuss the applications and working principle of the following sensors:
(a) Range sensors
(b) Acoustic sensors
(c) Tactile sensors. [5+5+6]
5. Explain the basic concept of two stage control of manipulator using joint variable. [16]
6. What is the function of gripper? Discuss various types of Grippers used in industrial Robots. [16]
7. Discuss with an illustrative example for any one type of Robot, solution for inverse kinematics problem of Robot. Discuss algorithm to be deployed for solving multiple solutions. [16]
8. Discuss the various applications of robots in hazardous areas. [16]
