2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY
IV B.TECH II SEMESTER REGULAR EXAMINATIONS
ROBOTICS AND AUTOMATION
(BIO MEDICAL ENGINEERING)

APRI/MAY 2006

TIME : 3HOUR
MARK :100

Answer any FIVE Questions All Questions carry equal marks

1. Define Degree of Freedom and discuss the various degrees of freedom. Associated with the polar coordinate robot arm and body.

2. (a) List the advantages and disadvantages of off-line programming?

(b) Define degree of freedom. Explain the various degrees of freedom used in the robot.

3. What are the advantages of using pneumatic drives in the robots? Discuss the different types of pneumatic drives used in the robots with the help of neat sketches.

4. (a) What are the used of sensors in robotics? Explain.

(b) What are the different types of sensors ed in robots? Explain the suitable sensor to measure the position of the gripper accurately.

5. What is passive impedance method and active impedance method? Explain them briefly.

6. (a) What are the advantages and disadvantages of hydraulic grippers?

(b) With the help of a neat sketch explain the principle and working of optical encoder.

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.

8. In which type of production, robots are preferred for loading and unloading function? Explain.