

NAME.....

ROLL NO.....

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-2008**

**III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS  
ROBOTICS AND AUTOMATION  
(ELECTRONICS&CONTROL ENGINEERING)**

AUG/SEP 2008

TIME-3 HOUR  
MARK-80

**ANSWER ANY FIVE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.**

1. Explain different types of manipulator configurations with neat sketches.
2. Classify various teaching methods of robot and briefly discuss about each of them.
3. Explain with suitable example, the single axis rotation method to find out the trajectory of end effectors.
4. Explain the following for smoothing of image:
  - (a) Neighborhood averaging
  - (b) Image averaging method
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 pneumatic gripper.
7. Distinguish inverse kinematics from direct kinematics? What is the role of inverse kinematics in controlling of robots?
8. (a) What are the various applications of robots in hazardous areas? Discuss them in detail.  
(b) Explain the concept of 'tracking window' in In-line robot work cell.