Punjab Technical University
Master of Computer Application Examination

MCA 4th Semester ROBOTICS ENGG. (OLD) 2006

Time: Three Hours Maximum Marks: 75
Note:
(1) Section-A is compulsory and have 15 short answer questions of 2 marks each.
(2) Attempt any nine questions from Section-B of 5 marks each.

Section – A (15x2=30)

1. (a) Name at least two different type of gripper or end- effectors for robot?
(b) What are the different classification systems of robots?
(c) What is the work envelop of a robot?
(d) What are the common methods of teaching a robot?
(e) Sketch two views to indicate the work envelop of a Cartesian robot
(f) What is a robot? Is Robotics automation?
(g) What is force and touch sensor?
(h) What is PWM amplifier?
(i) What is digitization in image processing?
(j) Write classification of robot language?
(k) What do you mean by Kinematics and inverse kinematics?
(l) What do you mean by joint coordinates?
(m) What is motion planning?
(n) What do you understand by robot manipulators?
(o) What is robot anatomy?

Section – B (5x9=45)

1. What task can be performed by a robotic vision system? Briefly explain.
2. Make a list of limitations of two-dimensional vision system.
3. Briefly describe the working of some contact sensors used in robotics. Give advantages of each.
4. Write some applications of robots. What do you think of future of robots?
5. What is meant by PID control? Explain with the aid of diagram the working principle of PID control of a robot.
6. What do you mean by open loop servo system? Illustrate through block diagrams.
7. How do you recognize an object? What are the possible feature that may be acted to identify an object?
8. Describe briefly the robot language element and functions.
9. What are the different textual robot languages? Discuss their relative merit and demerit.
10. What is the use of sensors in robotic? Explain in detail.
11. Write a short note on Inverse Kinematics and DH transformation.
12. Write a short note on Mobile robot.