rgpvonline.com

Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MMPD - 204

M.E./M.Tech., II Semester

Examination, December 2014

Robotics and Automated Material Handling

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Explain in brief various robot configurations.
   b) Briefly discuss the modes of programming industrial robots from the point of view of safety.

2. a) The co-ordinates of point P in a frame are $[3.0\ 2.0\ 1.0]^1$. The position vector P is rotated about Z- axis by 45°. Find the co-ordinates of point Q, the new position of point P.
   b) Define the forward and inverse kinematics in detail.

3. a) Briefly explain the three classifications of end effectors.
   b) Explain the difference between a hard and soft gripper.

4. a) Discuss the programming methods of Robots. Name Some Robot simulation software.
   b) What do you understand by algorithm? Explain

5. a) Explain different characteristics that must be considered in selecting a sensor ?
   b) What is machine vision ? Classify internal sensors.

6. a) Explain the Automated Guided Vehicle (AGV) system. Give some advantage of AGV.
   b) Discuss the automatic storage and retrieval system in brief.

7. a) Explain the significance of point, line and surface contact in the context of gripper design.
   b) What are the major components in vision systems? State the Physical characteristics in sensor selection.

8. Write Short notes on following (any three)
   i) Robot anatomy.
   ii) VAL Language.
   iii) The Denavit-Hartenberg notation.
   iv) Feedback System.

******