R09

Code No: D0404

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH II - SEMESTER EXAMINATIONS APRIL/MAY 2012
INDUSTRIAL ROBOTICS
(CAD/CAM)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks
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1.a) Differentiates between fixed and programmable Automation.
b) With neat sketches explain the four basic Robot Automation.

2.a) Discuss about the speed response and load carrying capacity of Robot.
b) Explain the working principle of potentiometer Resolver and Encoder.

3.a) Explain the basic concepts of control system analysis.
b) Where do you use an by Homogeneous Transfer motion? Determine the Homogeneous Transfer motion matrices for pure rotation pure Translation, scaling, reflection.

4.a) Perform the following sequence of operation on the vector $2i + 3j – 6k$
i) Rotate the vector about x-axis by 60^0.
ii) Then translate the vector along z-axis by 6 units.
iii) Then rotate the vector about y-axis by 20^0.
b) Compare the stem and joint interpolated motions with the help of examples.

5.a) What do you mean by mechanical gripper? Describe the expression for grasping force.
b) What are the features of tactile and proximity sensors? Explain.

6.a) Discuss about Wage processing, analysis and Image–data reduction.
b) What are the different generations of Robot language? Explain.

7.a) What is lead through programming? Explain.
b) Discuss about motion Interpolation with the help of examples.

8.a) What are the considerations on work cell design, and control?
b) State the features of robot used for spray painting.

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