

7E4065	Roll No. : _____	Total Printed Pages : 2
	7E4065	
B. Tech. (Sem. VII) (Main/Back) Examination, December-2012		
Mechanical Engg.		
7ME6.1 Robotics		

Time : 3 Hours]

[Maximum Marks : 80

[Min. Passing Marks : 24

*Attempt any five questions. Selecting one question from each unit.
All questions carry equal marks. Schematic diagrams must be
shown wherever necessary. Any data you feel missing suitably
be assumed and stated clearly. Units of quantities used /
calculated must be stated clearly.*

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. _____ Nil _____

2. _____ Nil _____

UNIT - I

1 Give the detailed classification of robot. 16

OR

- 1 (a) Explain the various programming methods of robots. 8
- (b) With the help of a diagram explain the anatomy of a robot. 8

UNIT - II

- 2 (a) Explain fundamental rotation matrices in detail. 12
- (b) For the following rotation matrix determine the axis of rotation and the angle of the rotation about the same. 4

OR

- 2 (a) Explain the robot configuration with neat sketches. 8
- (b) Explain the homogeneous transformation matrix and interpret the partitioning with application. 8

UNIT - III

- 3 Explain Denavit-Hartenberg convention with neat sketches. 16

OR

- 3 (a) With neat sketches explain the different configuration of robot joints and links. 10
- (b) Explain Kinematic Parameters of joints and Links. 6

UNIT - IV

- 4 Give the classification of sensors used in robotics system with neat sketches. 16

OR

- 4 (a) Explain with block diagram component of digital image processing. 16
- (b) Define end effectors. Explain with neat sketches various types of end effectors used in robotics.

UNIT - V

- 5 (a) Explain Material Handling application of robots in industry. 10
- (b) Give a brief overview of Robot safety. 6

OR

- 5 (a) Write short notes on the processing operation and assembly of robots. 8
- (b) What are the different categories of robot industrial applications? 8

