

Code No: **R32032**

R10

Set No. 1

III B.Tech II Semester Supplementary Examinations, Dec - 2015

ROBOTICS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) Explain the importance of Robotics in automation.
b) Discuss briefly about various sensors.
- 2 a) Explain about magnetic grippers and adhesive with neat diagram.
b) Define degrees of freedom for a robot configuration. How it matters for robots?
- 3 Derive representation of pure rotation about x, y and z axis.
- 4 Explain about Forward and inverse kinematics with suitable example.
- 5 a) Discuss the application of Lagrangian Newtonian techniques in writing the equation of motion for Robotics.
b) Apply a suitable technique for the two degree of freedom for both Rotational and linear system and derive the equation of motion.
- 6 a) Explain about importance of Robot Programming.
b) Write about Textual Robot languages programming as a path in space.
- 7 a) Explain Pneumatic actuators system with neat sketch.
b) Explain the various drive system used with an industrial robot and compare their features, merits and demerits.
- 8 What are the various fields in which the robots used? Discuss them in detail.

