

Code No: 138AA

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, September - 2020

ACTUATORS AND ROBOT SYSTEMS

(Electronics and Communication Engineering)

Time: 2 Hours

Max. Marks: 75

**Answer any Five Questions
All Questions Carry Equal Marks**

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1. What is Roll, pitch and yaw in robotics? Explain their significance in robotics. [15]
2. Sketch the workspaces for the following robots
a) Cartesian robots
b) Polar robots. [8+7]
3. Explain trajectory planning using joint space techniques. [15]
4. What is inverse kinematics? Define reachable workspace, dexterous workspace, work volume. [15]
5. Explain any two applications of Micro switches and Resistance Transducers. [15]
6. Explain the operation of Piezoelectric transducers and its applications. [15]
7. Discuss about various types of stepper motors used in robotics. [15]
8. Discuss the structure, elements and functions of any one Robot Language. [15]

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