

R16

Code No: 136FV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, November/December - 2020

ROBOTICS

(Common to CE, EEE, ME)

Time: 2 hours

Max. Marks: 75

**Answer any five questions
All questions carry equal marks**

- 1.a) Explain the difference between automation and robotics.
- b) What factors need to be considered while Designing end effectors. [7+8]
2. How do you specify a robot? Is robotics automation? Discuss the different classification systems of robots. [15]
3. What is Denavit-Hartenberg notation for assigning frames to links and identifying joint link parameters? Discuss. [15]
4. What is inverse kinematics? Define reachable workspace, dexterous workspace, work volume. [15]
5. Using Lagrange Euler formulations determine the equation of motion for the RP manipulator. [15]
6. What are the considerations that are made while planning a joint interpolated motion trajectory? Explain. [15]
7. Explain the components of a hydraulic system with a neat schematic diagram. [15]
8. Explain the various applications of robot in manufacturing and explain how the robots are handling materials in a shop floor. [15]

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