

Code No: 138AA

**R16**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech IV Year II Semester Examinations, December - 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.a) Classify different types of coordinate systems and explain.  
b) Write briefly about the application of robots in pick and place, gantry and arm type robots. [7+8]
2. Explain in detail the robot positioning methods and its advantages and limitations. [15]
3. Explain in detail different types of joints and its notation scheme. [15]
4. For a planar RP manipulator assuming suitable data develop the kinematic relationship using DH algorithm. [15]
5. Explain in detail the principle of resistance transducers type sensors in robotic system and write its advantages. [15]
6. How radio frequency identification (RFID) functions and write its significance in robotic system? [15]
7. What are the different types of cylinders used in hydraulic drives and explain with the help of a neat sketch. [15]
- 8.a) Explain in detail about robot programming and write its structure and functions.  
b) Explain in detail the applications of robot in assembly and inspections. [8+7]

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