

Enroll No

Rajarambapu Institute of Technology, Rajaramnagar
(An Empowered Autonomous Institute, affiliated to SUK)

Q.P. Code
UT 3053

Unit Test -I (2025-26)

T.Y. B.Tech.- Robotics & Automation

Course Code: RAMD301**Course Name: MDM-III Kinematic & Dynamics for Robots**

Day & Date: Thursday 14.08.2025

Time: 10.30-11.30 AM

Max Marks-25

Instructions: 1) All questions are compulsory.

2) Figures in rounded () brackets within the question, indicate the scheme of marking for respective part of the question, whereas figures in the first right column indicate total marks for that whole question.

3) CO is the index number of the Course Outcome statement.

4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.

5) Assume suitable data if necessary.

6) Use of non-programmable calculators is allowed

		Marks	BL	CO
Q.1	A	6	2	1
	Explain the following terms with suitable examples:			
	1. Kinematic link--- and list its types (2)			
	2. Kinematic pair--- and classify based on type of relative motion(2)			
	3. Kinematic chain----and state its types(2)			
	B	7	3	3
	Describe six degree of freedom with appropriate diagram(3). Explain joints of robotics(1) with its types(each type 1)			
OR				
	C	7	3	1
	illustrates the concept of position and orientation of a rigid body.(3) List the types of coordinates with a diagram of each(4)			



Q.2 A Write the concept of constrained motion(3) and its types with neat diagram.(3) 6 3 1

B Illustrate the Following rotation, plot frames (A) and (B) 6 3 2
(each correct step 2 marks)

$${}^A R_B = \begin{bmatrix} 0 & 0 & -1 \\ -1 & 0 & 0 \\ 0 & 1 & 0 \end{bmatrix}$$

