

MCE4101 Introduction to Robotics
Quiz2 (5%) –SET 2 (ID end with 0, 3)

Name.....ID.....

Date: 9 Sept 2021 (9.15-10.00)

Note:

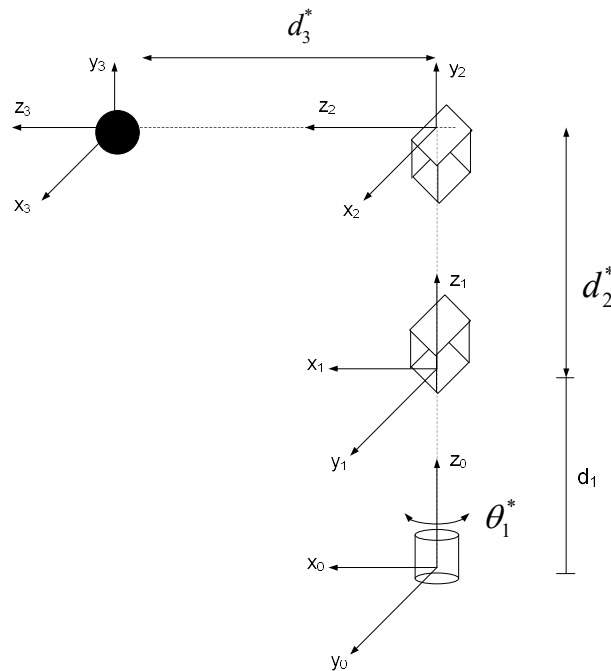
1. OPEN BOOK.

2. There are 2 questions.

3. 50 Marks equivalent to 5%.

1. (30 Marks). The 3 links RPP robot is shown.

- (5 Marks) Obtain DH table and the transformation matrix equation T_3^0 . Where d_1 is link offset. Given $d_1 = 2.5$.
- (15 Marks) Determine with analytic method for possible solution for end point location $P_{end} = [1.13 \quad 1.95 \quad 3.75]$. Show your working steps.
- (10 Marks) Check your answer b), show your checked answer and your working steps.

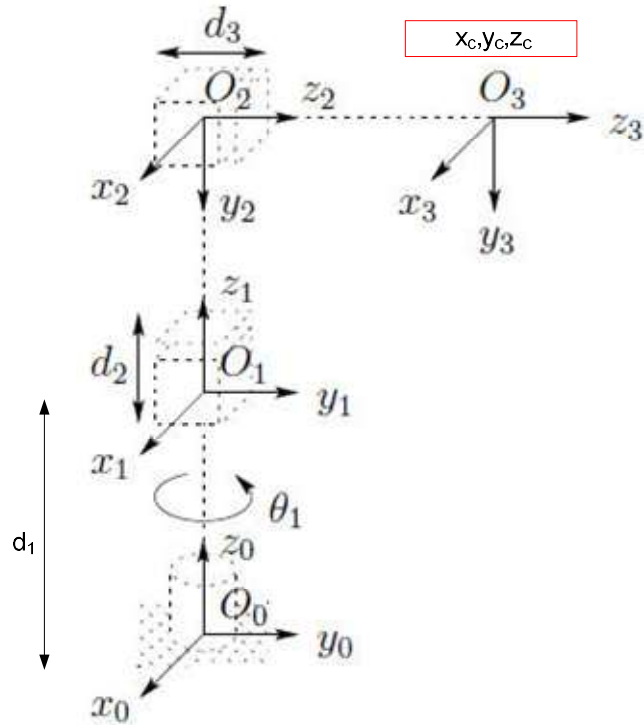


Ans:

2. (20 Marks)

a) (15 Marks) Given $P(x_c, y_c, z_c)$, determine variable's equation for θ_1^*, d_2^*, d_3^* in term of x_c, y_c, z_c and d_1 for RPP robot by **geometrical** method.

b) (5 Marks) From a), Given $d_1 = 2.5$ and $P(1.5, 1.25, 3)$, obtained 1 set of θ_1^*, d_2^*, d_3^* .



Ans:

