MCE4101 Introduction to Robotics
Quiz2 (5%) –SET 3 (ID end with 4,7,9)

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%.

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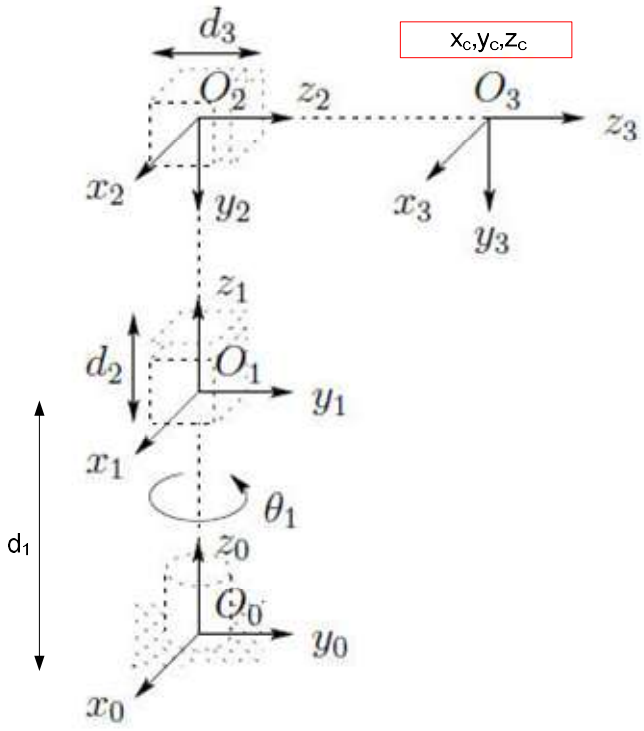
1. (20 Marks)

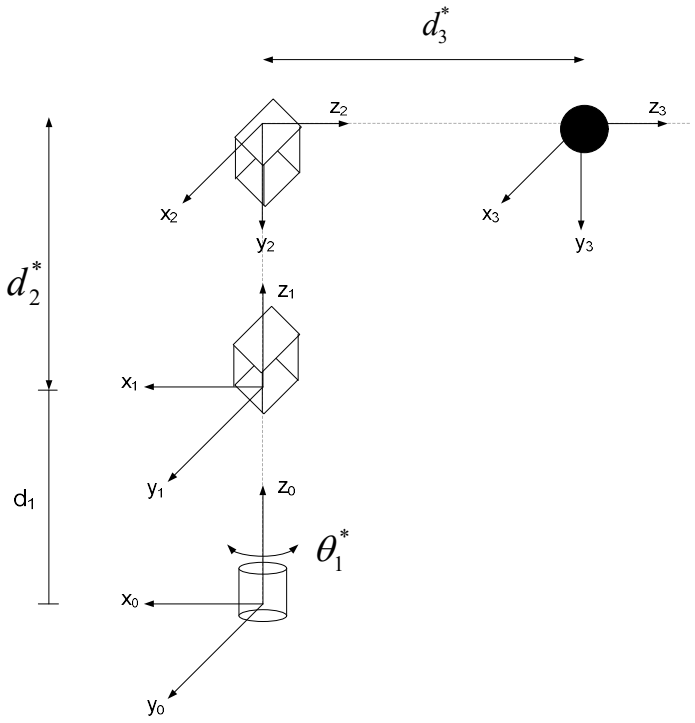
a) (15 Marks) Given P(x_c, y_c, z_c), determine variable's equation for θ_1^*, d_2^*, d_3^* in term of x_c, y_c, z_c and d_1 for RPP robot by **geometrical** method.

b) (5 Marks) From a), Given d_1 = 2.5 and P(1.25, 1.25, 3.25), obtained 1 set of θ_1^*, d_2^*, d_3^*.



Ans:

2. (30 Marks). The 3 links RPP robot is shown.
   a) (5 Marks) Obtain DH table and the transformation matrix **equation** T^0_3. Where d_1 is link offset. Given $d_1 = 2.5$.
   b) (15 Marks) Determine with analytic method for possible solution for end point location Pend = [1.13 1.95 5]. Show your working steps.
   c) (10 Marks) Check your answer b), show your checked answer and your working steps.



Ans: