MCE4101 Sept2020

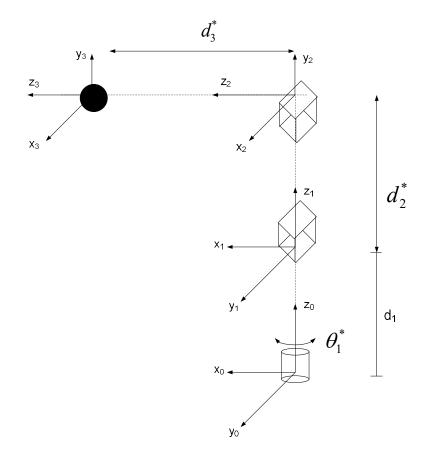
## MCE4101 Introduction to Robotics Quiz2 (5%) SET5

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Date: 15 Sept 2020 (9.15-10.00)

Note:

- 1. OPEN BOOK.
- 2. Matlab is allowed.
- 3. Answer to the nearest 2 decimal place.
- 4. 40 Marks equivalent to 5%.
- 1. (40 Marks). The 3 links RPP robot is shown.
  - a) (5 Marks) Obtain DH table and the transformation matrix <u>equation</u>  $T^0_3$ . Where  $d_1$  is link offset. Given d1 = 2.5.
  - b) (15 Marks) Determine with analytic method for possible solution for end point location Pend = [1.13 1.95 3.75]. Show your working steps.
  - c) (10 Marks) Determine with ikine robotic function for possible solution for end point location Pend = [1.13 1.95 3.75]. Given IG = [pi/10 1 1]. Show your MATLAB code and the answer.
  - d) (10 Marks) Check your answer b) and c) with fkine robotic function. Show your MATLAB code and the answer.



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