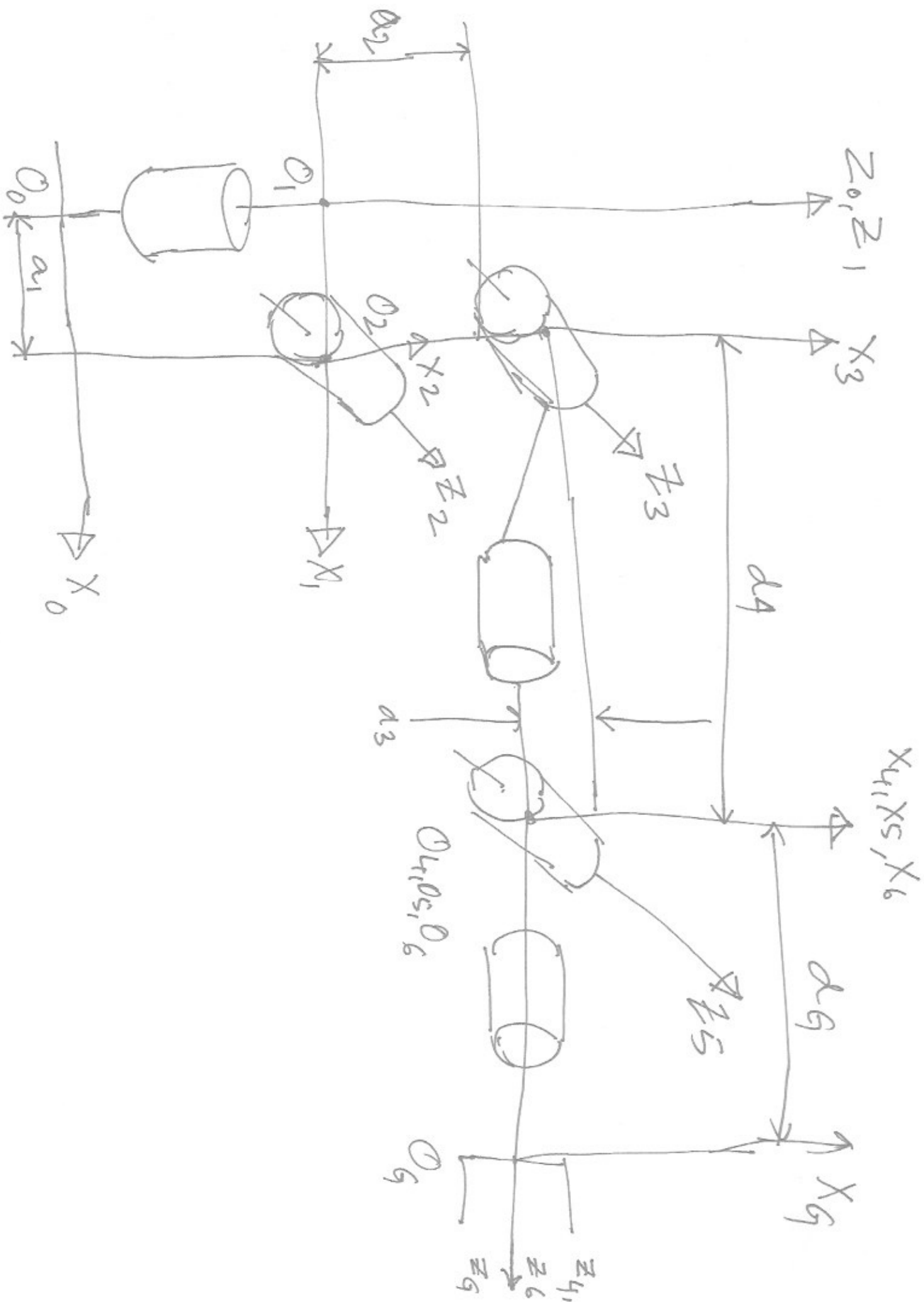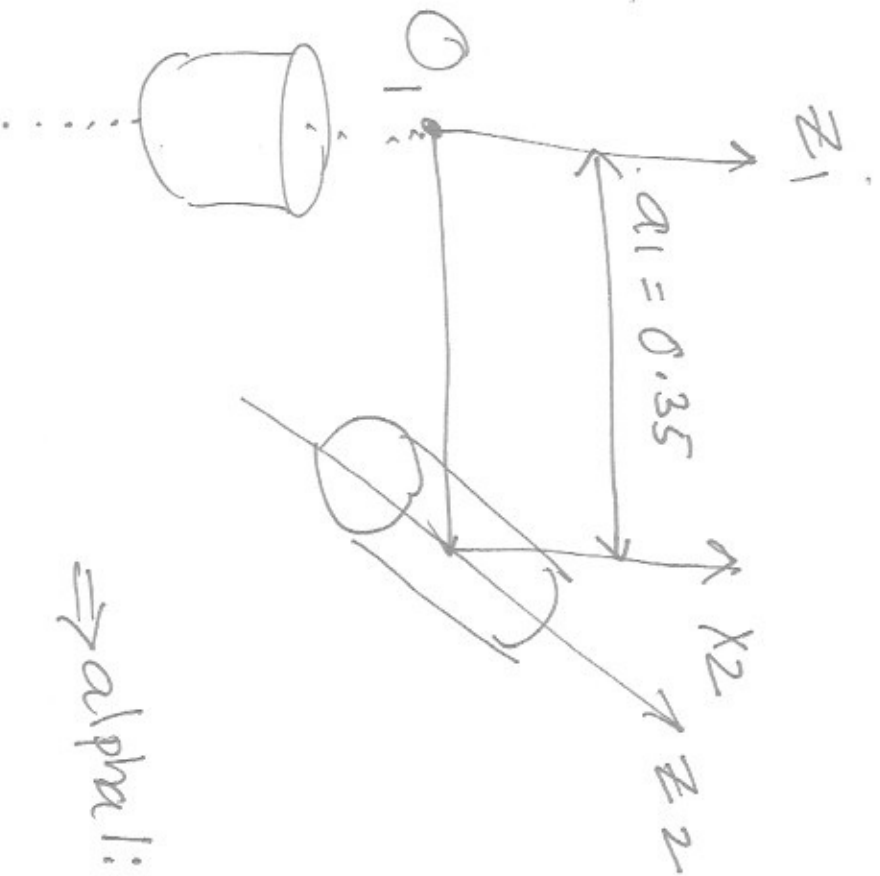JOINT Reference frames and DH Parameters a and d.

$\underline{\underline{\Theta_0 - \Theta_1}}$ [Joint 1]

$d1 = 0.42 + 0.33$
$= 0.75$

alpha 0 : 0, a0 : 0, d1 : .75, $\theta_1 : \theta_1$
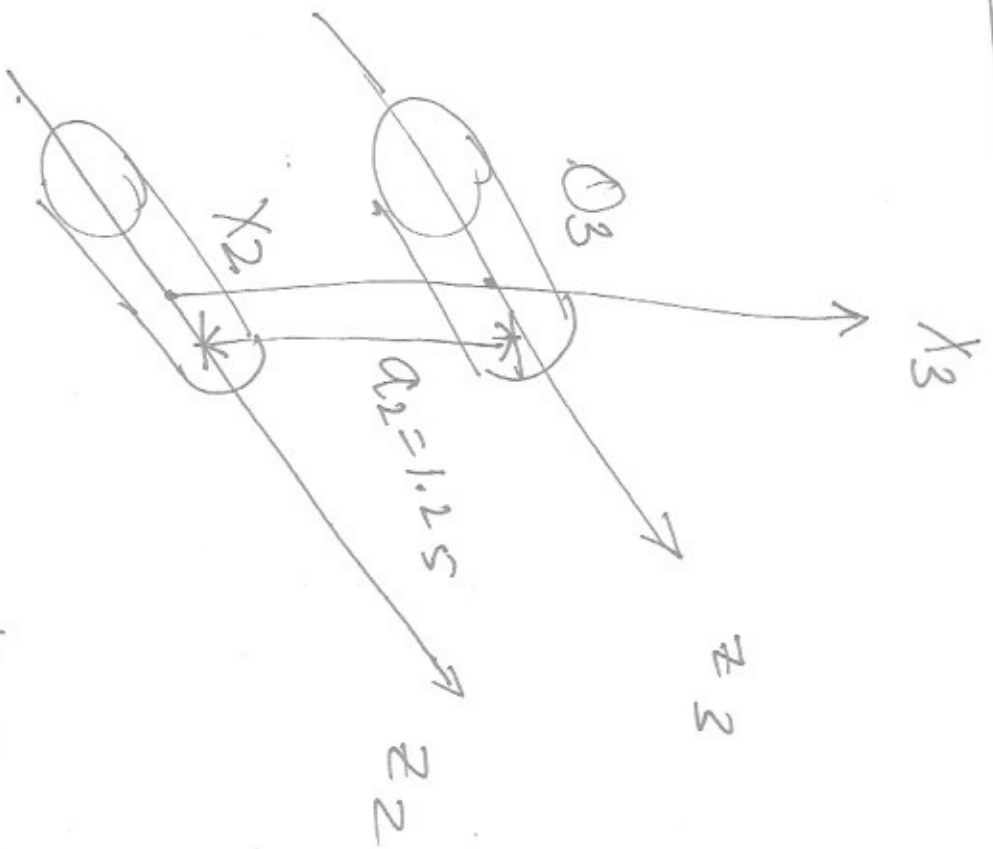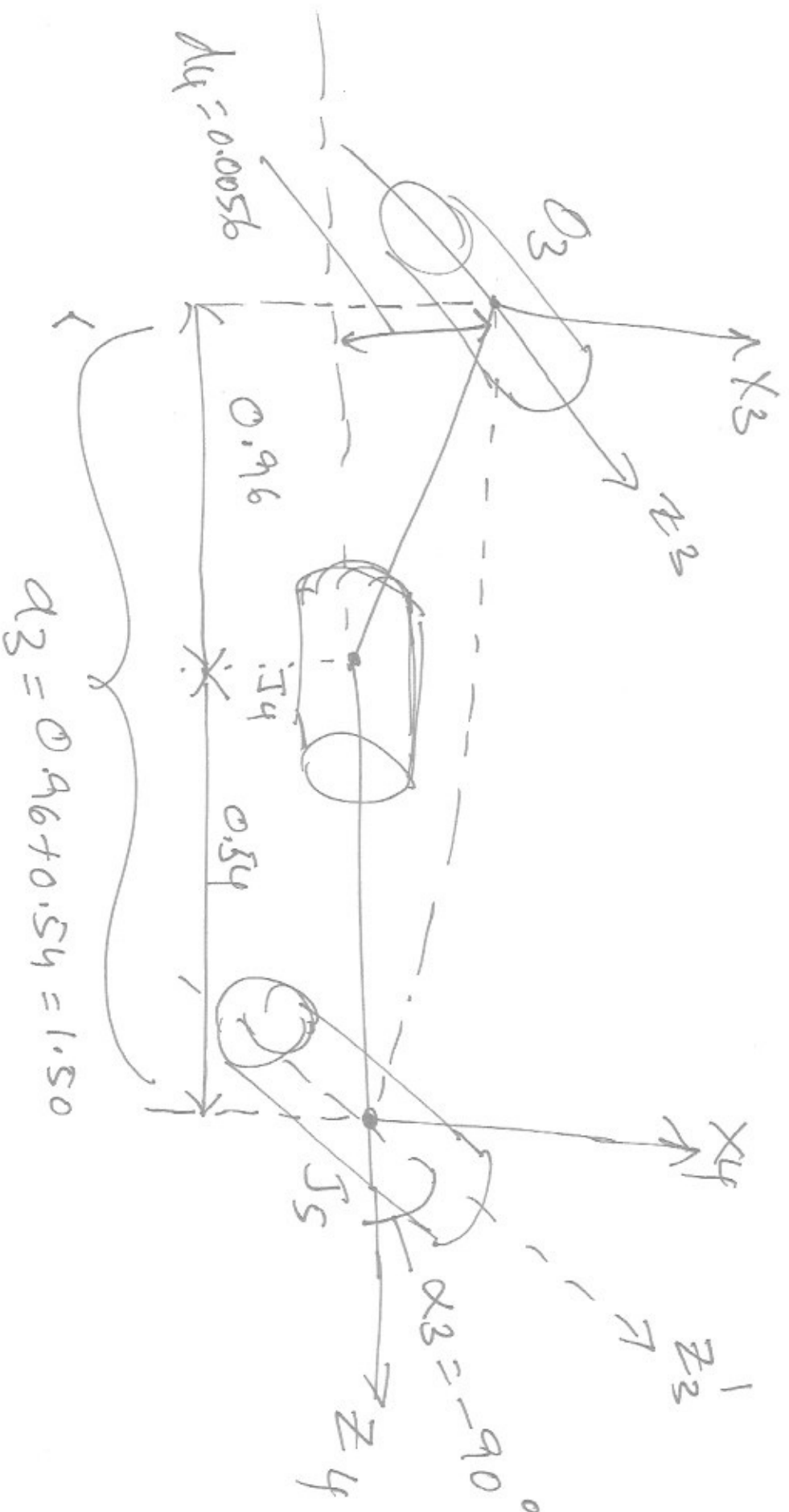
$O1 - O2$

z_1

$a_1 = 0.35$

O_1

x_2

z_2

z_1

$z_1' = z_2$

$\alpha_1 = -90°$

x

$\Rightarrow alpha1: -\frac{Pi}{2}$, $a_1 = 0.35$, $d_2 = 0.92 = q_2 - \frac{Pi}{2}$

$O_2 - O_3$

x_3

x_2

O_3

z_3

$a_2 = 1.25$

z_2

$\Longrightarrow alpha\,2 = 0, a_2 = 1.25, d_3 = 0, q_3 = q_3$

$$\underline{\Theta_3 - \Theta_4}$$

$$a_3 = 0.96 + 0.54 = 1.50$$

$$\implies alpha\,3 = \frac{-Pi}{2}, \quad a3 = 1.50, d4 = -0.0056, q_4 = q_4$$

O_4, O_5

x_4, x_5

z_5

$\alpha = 90°$

J_5

z_4

$alpha4 = \dfrac{pi}{2}$, $a_4 = 0$, $d_5 = 0$, $9_5 = 9_5$

O_5, O_6

y_5, x_5

z_5

J_5

J_6

x_5

z_5

$x_5 = -90°$

z_6

$alpha5 = -\dfrac{pi}{2}$, $d_5 = 0$, $d_6 = 0$, $9_6 = 9_6$

$d7 = 0.303$

X_6

X_5

$O6$

$O5$

Z_6

$O3$
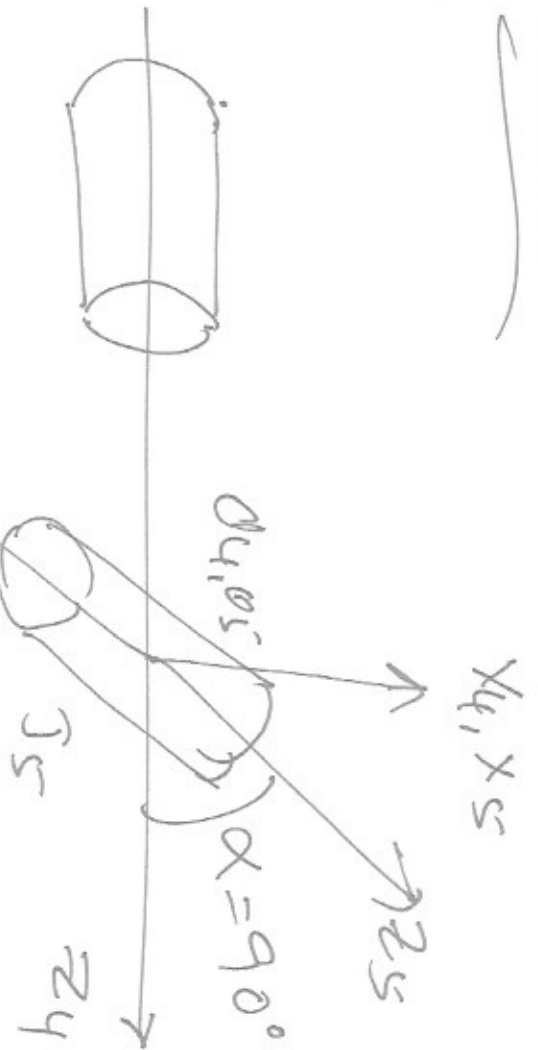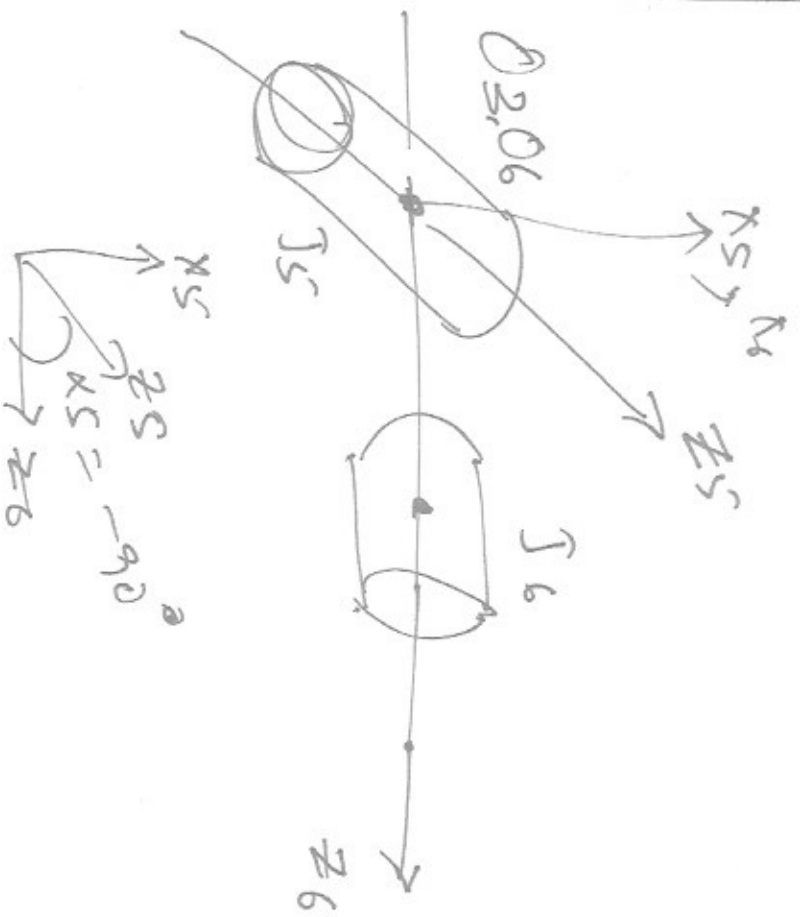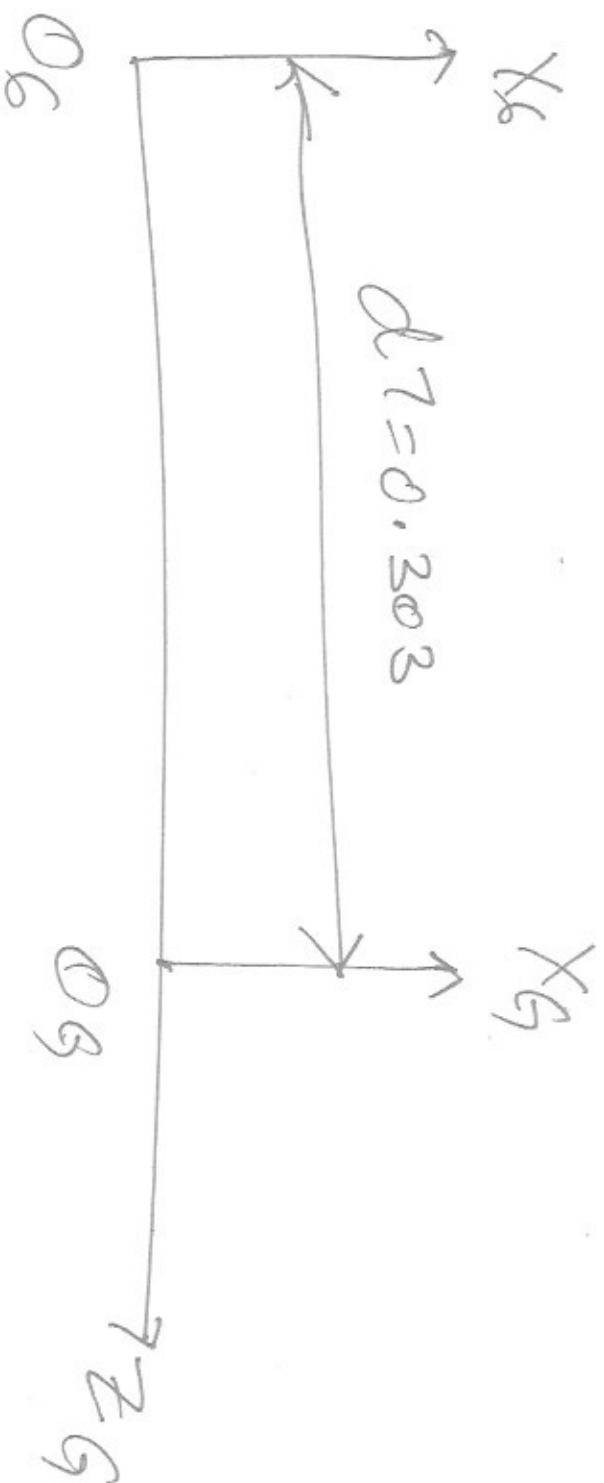
$\Rightarrow \alpha6 = 0 \; ; \; a6 = 0 \; ; \; d7 = 0.303 \; , q7 = 0$

DH Table:

DH_Table = E

alpha0 : 0   a0 ≠ 0   d1 : 0.75   a1 : a1

alpha1 : -Pi/2   a1 : 0.35   d2 : 0   a2 : a2 - $\frac{Pi}{2}$

alpha2 : 0   a2 : 1.25   d3 : 0   a3 : a3

alpha3 : -Pi/2   a3 : -0.0054   d4 : 1.5   a4 : a4

alpha4 : Pi/2   a4 : 0   d5 : 0   a5 : a5

alpha5 : -Pi/2   a5 : 0   d6 : 0   a6 : a6

alpha6 : 0   a6 : 0   d7 : 0.303   a7 : 0   E