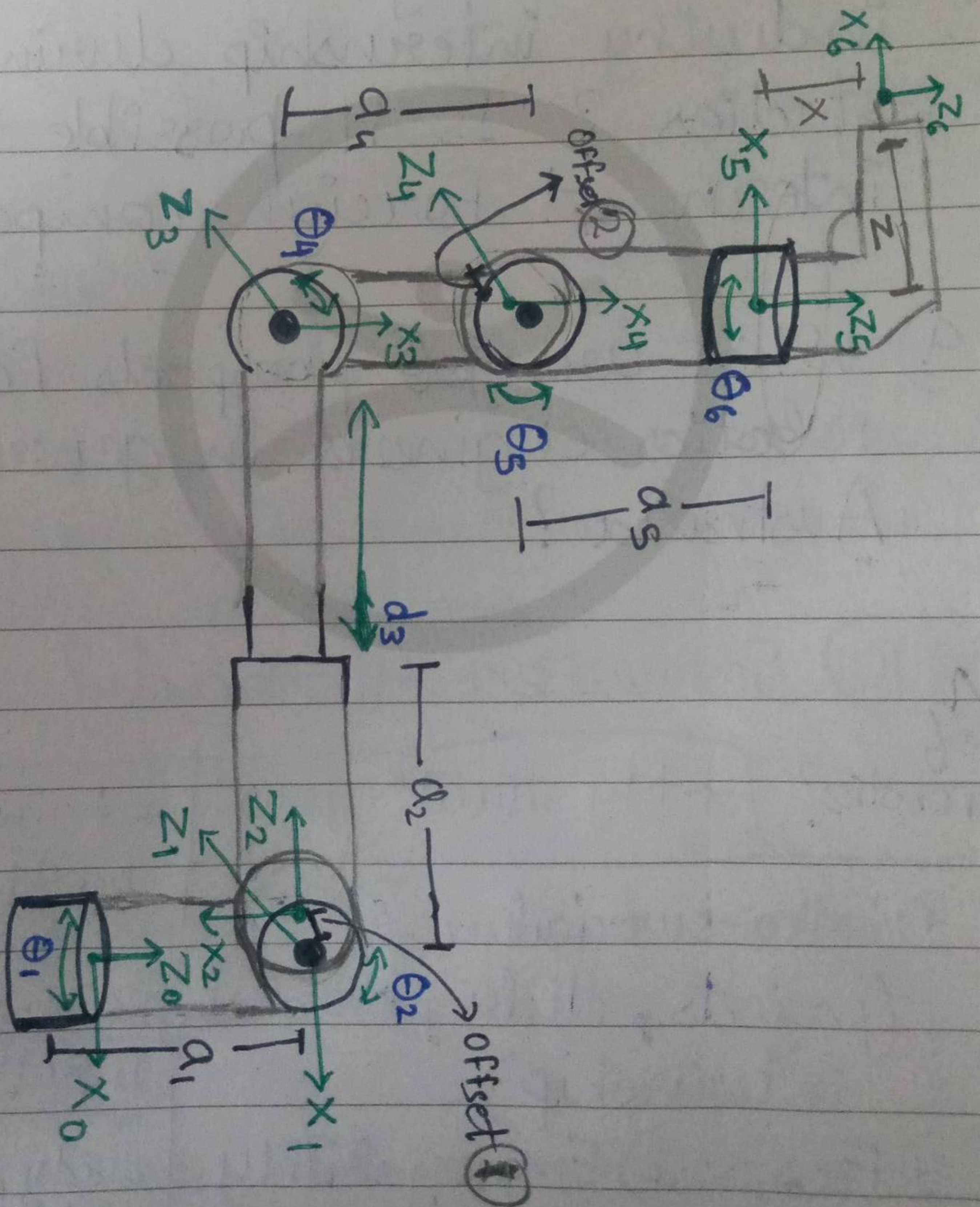


A_1	α	\mathcal{X}	d_1	Θ_1
A_2	0	$+90$	d_2	Θ_2
A_3	0	$+90$	d_2+d_3	180
A_4	d_4	0	0	Θ_4
A_5	0	$+90$	d_5	Θ_5
A_6	Z	0	X	Θ_6



* Forward Kinematics :-

$$A_1 = \begin{bmatrix} c\theta_1 & 0 & s\theta_1 & 0 \\ s\theta_1 & 0 & -c\theta_1 & 0 \\ 0 & 1 & 0 & a_1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_2 = \begin{bmatrix} c(90-\theta_2) & 0 & -s(90-\theta_2) & 0 \\ -s(90-\theta_2) & 0 & -c(90-\theta_2) & 0 \\ 0 & 1 & 0 & \text{Offset (1)} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_2 = \begin{bmatrix} s\theta_2 & 0 & -c\theta_2 & 0 \\ -c\theta_2 & 0 & -s\theta_2 & 0 \\ 0 & 1 & 0 & \text{Offset (1)} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_3 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & a_2 + d_3 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_{12} = \begin{bmatrix} C_1 S_2 & S_1 & -C_1 C_2 & S_1 \text{Offset} \textcircled{1} \\ S_1 S_2 & -C_1 & -S_1 C_2 & -C_1 \text{Offset} \textcircled{1} \\ -C_2 & 0 & -S_2 & a_1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_{13} = \begin{bmatrix} C_1 S_2 & -C_1 C_2 & -S_1 & -C_1 C_2 (a_2 + d_3) + S_1 \textcircled{1} \\ S_1 S_2 & -S_1 C_2 & C_1 & -S_1 C_2 (a_2 + d_3) - C_1 \textcircled{1} \\ -C_2 & -S_2 & 0 & -S_2 (a_2 + d_3) + a_1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_4 = \begin{bmatrix} C_4 & -S_4 & 0 & a_4 C_4 \\ S_4 & C_4 & 0 & a_4 S_4 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_5 = \begin{bmatrix} -S_5 & 0 & C_5 & 0 \\ C_5 & 0 & S_5 & 0 \\ 0 & 1 & 0 & \text{Offset} \textcircled{2} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_6 = \begin{bmatrix} C_6 & -S_6 & 0 & aC_6 \\ S_6 & C_6 & 0 & aS_6 \\ 0 & 0 & 1 & d \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_{45} = \begin{bmatrix} -S_5 C_4 - C_4 S_5 & 0 & C_4 C_5 - S_4 S_5 & a_4 C_4 \\ -S_4 S_5 + C_4 C_5 & 0 & S_4 C_5 + C_4 S_5 & a_4 S_4 \\ 0 & 1 & 0 & \Theta(2) \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_{45} = \begin{bmatrix} -S_{45} & 0 & C_{45} & a_4 C_4 \\ C_{45} & 0 & S_{45} & a_4 S_4 \\ 0 & 1 & 0 & \Theta(2) \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_{46} = \begin{bmatrix} -S_{45} C_6 + S_{45} S_6 & C_{45} & -a C_6 S_{45} + d C_{45} + a_4 C_4 \\ C_{45} C_6 - C_{45} S_6 & S_{45} & a C_{45} C_6 + d S_{45} + a_4 S_4 \\ 0 & C_6 & 0 & d S_6 + \Theta(2) \\ 0 & 0 & 0 & 1 \end{bmatrix}$$