```matlab
clc;
clear all;

%%Baxter 6 DOF Forward and Inverse Kinematics Validation%%

syms q1 q2 q3 q4 q5 q6 q7 alpha1 alpha2 alpha3 alpha4 alpha5
syms alpha6 alpha7 L0 L1 L2 L3 L4 L5 L6 L7 Lh a1 a2 a3 a4 a5 d1 d2 d3 d4
syms d5 d6 d7

%%Input Joint Variables

disp('Input Joint Angles to compute the Transformation matrix')

q1=45;
q2=10;
q4=45;
q5=22;
q6=45;
q7=10;

Q=[q1,q2,q4,q5,q6,q7]

%%Link Lengths
L0=270;
L1=69;
L2=364;
L3=69;
L4=375;
L5=0;
L6=368;
Lh=370.48;

q1=q1;
q2=q2;
q4=q4+90;
q5=q5;
q6=q6;
q7=q7;

alpha1=-90;
alpha2=0;
alpha4=90;
alpha5=-90;
alpha6=90;
alpha7=0;

a1=L1;
a2=Lh;
a4=0;
a5=L5;
a6=0;
a7=0;
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d1=L0;
d2=0;
d4=0;
d5=L4;
d6=0;
d7=L6;


%%0-1 matrix
Rz_theta1=[cosd(q1) -sind(q1) 0 0;sind(q1) cosd(q1) 0 0;0 0 1 0;0 0 0
 1];
Rx_alpha1=[1 0 0 0;0 cosd(alpha1) -sind(alpha1) 0;0 sind(alpha1)
 cosd(alpha1) 0;0 0 0 1];
Tz_d1=[1 0 0 0;0 1 0 0;0 0 1 d1;0 0 0 1];
Tx_a1=[1 0 0 a1;0 1 0 0;0 0 1 0;0 0 0 1];

%%1-2 matrix
Rz_theta2=[cosd(q2) -sind(q2) 0 0;sind(q2) cosd(q2) 0 0;0 0 1 0;0 0 0
 1];
Rx_alpha2=[1 0 0 0;0 cosd(alpha2) -sind(alpha2) 0;0 sind(alpha2)
 cosd(alpha2) 0;0 0 0 1];
Tz_d2=[1 0 0 0;0 1 0 0;0 0 1 d2;0 0 0 1];
Tx_a2=[1 0 0 a2;0 1 0 0;0 0 1 0;0 0 0 1];

%%2-4 matrix
Rz_theta4=[cosd(q4) -sind(q4) 0 0;sind(q4) cosd(q4) 0 0;0 0 1 0;0 0 0
 1];
Rx_alpha4=[1 0 0 0;0 cosd(alpha4) -sind(alpha4) 0;0 sind(alpha4)
 cosd(alpha4) 0;0 0 0 1];
Tz_d4=[1 0 0 0;0 1 0 0;0 0 1 d4;0 0 0 1];
Tx_a4=[1 0 0 a4;0 1 0 0;0 0 1 0;0 0 0 1];

%%4-5 matrix
Rz_theta5=[cosd(q5) -sind(q5) 0 0;sind(q5) cosd(q5) 0 0;0 0 1 0;0 0 0
 1];
Rx_alpha5=[1 0 0 0;0 cosd(alpha5) -sind(alpha5) 0;0 sind(alpha5)
 cosd(alpha5) 0;0 0 0 1];
Tz_d5=[1 0 0 0;0 1 0 0;0 0 1 d5;0 0 0 1];
Tx_a5=[1 0 0 a5;0 1 0 0;0 0 1 0;0 0 0 1];

%%5-6 matrix
Rz_theta6=[cosd(q6) -sind(q6) 0 0;sind(q6) cosd(q6) 0 0;0 0 1 0;0 0 0
 1];
Rx_alpha6=[1 0 0 0;0 cosd(alpha6) -sind(alpha6) 0;0 sind(alpha6)
 cosd(alpha6) 0;0 0 0 1];
Tz_d6=[1 0 0 0;0 1 0 0;0 0 1 d6;0 0 0 1];
Tx_a6=[1 0 0 a6;0 1 0 0;0 0 1 0;0 0 0 1];

%%6-7 matrix
Rz_theta7=[cosd(q7) -sind(q7) 0 0;sind(q7) cosd(q7) 0 0;0 0 1 0;0 0 0
 1];
Rx_alpha7=[1 0 0 0;0 cosd(alpha7) -sind(alpha7) 0;0 sind(alpha7)
 cosd(alpha7) 0;0 0 0 1];
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        Tz_d7=[1 0 0 0;0 1 0 0;0 0 1 d7;0 0 0 1];
        Tx_a7=[1 0 0 a7;0 1 0 0;0 0 1 0;0 0 0 1];



        %%multiplying to get homogeneous matrices
        A_1 = (Rz_theta1*Tz_d1*Tx_a1*Rx_alpha1);
        A_2 =(Rz_theta2*Tz_d2*Tx_a2*Rx_alpha2);
        A_4 =(Rz_theta4*Tz_d4*Tx_a4*Rx_alpha4);
        A_5 =(Rz_theta5*Tz_d5*Tx_a5*Rx_alpha5);
        A_6 =(Rz_theta6*Tz_d6*Tx_a6*Rx_alpha6);
        A_7 =(Rz_theta7*Tz_d7*Tx_a7*Rx_alpha7);


        %Transformation matrices
        T01=A_1;
        T02=A_1*A_2;
        T04=A_1*A_2*A_4;
        %T04=simplify(T04)
        T05=A_1*A_2*A_4*A_5;
        %T05=simplify(T05)
        T06=A_1*A_2*A_4*A_5*A_6;
        disp('Final Transformation matrix for the input joint angles')
        T07=A_1*A_2*A_4*A_5*A_6*A_7

        %Computing Theta5, Theta6, Theta7
        R04=T04(1:3,1:3);
        D04=T04(1:3,4);
        R04T=transpose(R04);
        R04TD04= R04T*D04;
        T04inv=[R04T -R04T*D04;0 0 0 1];
        %T04inv=simplify(T04inv);
        T47=T04inv*T07;
        %T47=simplify(T04inv*T07)

        %Computing theta5
        r23=T47(2,3);
        r13=T47(1,3);
        theta5=(atan2(r23,r13))*180/3.14;

        %Computing theta 7
        r32=T47(3,2);
        r31=T47(3,1);
        theta7=(atan2(r32,-r31))*180/3.14;

        %Computing theta6
        r33=T47(3,3);
        theta6=(atan2((-r31/cosd(q7)),r33))*180/3.14;

        %Computing theta1
        x05=T05(1,4);
        %x05=simplify(x05)
        y05=T05(2,4);
        %y05=simplify(y05)
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z05=T05(3,4);

%z05=simplify(z05)
theta1=(atan2(y05,x05))*180/3.14;

%Computing theta2
E = 2*Lh*(L1-(x05/cosd(q1)));
F = 2*Lh*(z05-L0);
G = (x05/cosd(q1))^2+(L1^2)+(Lh^2)+(z05^2)+(L0^2)-(L4^2)-((2*x05*L1)/
cosd(q1))-2*z05*L0;
t = (-F-sqrt((E^2)+(F^2)-(G^2)))/(G-E);
theta2 = 2*atan(t);
teta2=theta2*180/3.14;



%Computing theta4
theta4 = (atan2(L0-z05-Lh*sind(q2),(x05/cosd(q1))-L1-(Lh*cosd(q2)))-
theta2)*180/3.14;



%Final joint variables
j1=theta1;
j2=teta2;
j4=theta4;
j5=theta5;
j6=theta6;
j7=theta7;

disp('Joint angles calculated from the Transformation matrix above')
Joint_Angles = [j1,j2,j4,j5,j6,j7]
```

Input Joint Angles to compute the Transformation matrix

Q =

   45   10   45   22   45   10

Final Transformation matrix for the input joint angles

T07 =

  -0.9170   -0.2837   -0.2803   355.7334
  -0.3204   0.9426   0.0943   493.5887
   0.2374   0.1763   -0.9553 -453.0564
       0   0   0   1.0000

Joint angles calculated from the Transformation matrix above

Joint_Angles =

  45.0228   10.0051   45.0228   22.0112   45.0228   10.0051