```
clear;clc;
%Declaracion de variables
syms CA CB T TJ u1 u2
%Parametros
k10 = 1.287e12; %hr^-1
k20 = k10;%hr^-1
k30 = 9.043e9; %L/(hr*mol)
E1R = 9758.3; %K
E2R = E1R; %K
E3R = 8560; %K
deltaHr1 =  4.2; %kJ/mol
deltaHr2 = -11; %kJ/mol
deltaHr3 = -41.85; %kJ/mol
p = 0.9342; %kg/L
cp = 3.01; %kJ/(kg*K)
kw = 4032; %kJ(hr m^2 K)
Ar = 0.215; %m^2
Vr = 10; %L
mj = 5; %kg
cpj = 2.0; %kJ/(kg K)
F = u2;%141.9; %L/hr
Qj = u1;%-1113.5; %kJ/hr
ca0 = 5.1; %mol/L
To = 378.05; %K
%Fin de parametros

%Inicio de Ecuaciones de estado
dx1dt = F/Vr*(ca0-CA)-k10*exp(-E1R/T)*CA-k30*exp(-E3R/T)*CA^2;

dx2dt = -F/Vr*CB+k10*exp(-E1R/T)*CA-k20*exp(-E2R/T)*CB;

dx3dt = F/Vr*(To-T)+kw*Ar/(p*cp*Vr)*(TJ-T)-(k10*deltaHr1*exp(-E1R/T)
*CA...
            +k20*deltaHr2*exp(-E2R/T)*CB+k30*deltaHr3*exp(-E3R/T)
*CA^2)/(p*cp);
dx4dt = 1/(mj*cpj)*(Qj+kw*Ar*(T-TJ));

%Aplicamos el jacobiano a nuestras ecuaciones
a = jacobian([dx1dt, dx2dt, dx3dt, dx4dt],[CA CB T TJ u2 u1]);
%Punto de operacion
CA = 2.1304;
CB=1.0903;
T=387.34;
TJ=386.06;
u1 = -1113.5;
u2 = 141.9;
```

```
%Mostrar resultado
eval(subs(a))
```