1.

V\_P=K3[ES]

V\_ES=K1[E][S]-K2[ES]-K3[ES]

V\_E=K2[ES]+K3[ES]-K1[E][S]

V\_S=K2[ES]-K1[E][S]

2.

The final concentrations of E,S,ES,P are as follows:

0.9999999442186893

4.083027543005182e-07

5.5781308424341286e-08

9.999999535915999

The code in python:

import matplotlib.pyplot as plt  
  
  
def FP(E,S,ES):  
 return 150\*ES  
def FES(E,S,ES):  
 return 100\*E\*S-750\*ES  
def FE(E,S,ES):  
 return 750\*ES-100\*E\*S  
def FS(E,S,ES):  
 return 600\*ES-100\*E\*S  
ans=[-100,-1];  
t=[0]  
P=[0]  
ES=[0]  
E=[1]  
S=[10]  
h=0.00001  
N=100000  
  
def main():  
 for i in range(N):  
  
  
 A1 = FE(E[-1], S[-1], ES[-1])  
 B1 = FS(E[-1], S[-1], ES[-1])  
 C1 = FES(E[-1],S[-1], ES[-1])  
 D1 = FP(E[-1], S[-1], ES[-1])  
  
 A2 = FE(E[-1]+h\*A1/2, S[-1]+h\*B1/2, ES[-1]+h\*C1/2)  
 B2 = FS(E[-1]+h\*A1/2, S[-1]+h\*B1/2, ES[-1]+h\*C1/2)  
 C2 = FES(E[-1]+h\*A1/2,S[-1]+h\*B1/2, ES[-1]+h\*C1/2)  
 D2 = FP(E[-1]+h\*A1/2, S[-1]+h\*B1/2, ES[-1]+h\*C1/2)  
  
 A3 = FE(E[-1]+h\*A2/2, S[-1]+h\*B2/2, ES[-1]+h\*C2/2)  
 B3 = FS(E[-1]+h\*A2/2, S[-1]+h\*B2/2, ES[-1]+h\*C2/2)  
 C3 = FES(E[-1]+h\*A2/2,S[-1]+h\*B2/2, ES[-1]+h\*C2/2)  
 D3 = FP(E[-1]+h\*A2/2, S[-1]+h\*B2/2, ES[-1]+h\*C2/2)  
  
 A4 = FE(E[-1]+h\*A3, S[-1]+h\*B3,ES[-1]+h\*C3)  
 B4 = FS(E[-1]+h\*A3, S[-1]+h\*B3,ES[-1]+h\*C3)  
 C4 = FES(E[-1]+h\*A3,S[-1]+h\*B3,ES[-1]+h\*C3)  
 D4 = FP(E[-1]+h\*A3, S[-1]+h\*B3,ES[-1]+h\*C3)  
  
 E.append(E[-1]+h\*(A1+2\*A2+2\*A3+A4)/6)  
 S.append(S[-1]+h\*(B1+2\*B2+2\*B3+B4)/6)  
 ES.append(ES[-1]+h\*(C1+2\*C2+2\*C3+C4)/6)  
 P.append(P[-1]+h\*(D1+2\*D2+2\*D3+D4)/6)  
  
 t.append(FP(E[-1],S[-1],ES[-1]))  
 if(t[-1]>ans[0]):  
 ans[0]=t[-1]  
 ans[1]=S[-1]  
main()  
print(ans[0])  
plt.figure()  
plt.scatter(S,t)  
plt.show()  
  
3.

Vm: 82.64786379513252

The graph:

