Θεμα 2

System I

So	**423**
Q	**27**
k	**0,03**
V	**1570**
t1	58,15
Se1	56,16
E1	**86,72%**
Q/2	13,5
t2	116,3
Se2	94,23
E2	**77,72%**

$$t_1 = \frac{V}{Q}$$=1570/27=58,15h

$$S_{e1} = \frac{S_0}{(1+kt_1)^2}$$=423/[(1+0,03*58,15)^2]=56,16mg/L

$$E_1 = 1 - \frac{S_{e1}}{S_0}$$=1-56,16/423=0,8672=86,72%

System II

$Q_1 = Q_2 = Q/2$ $\qquad$ $V_1 = V_2 = V$

$$t_2 = \frac{V}{\frac{Q}{2}}$$=1570/(27/2)=1570/13,5=116,3h

$$S_2 = \frac{S_0}{1 + kt_2}$$

$S_2 = S_3$

$$S_3 = \frac{S_0}{1 + kt_2}$$

$$Q_1S_2 + Q_2S_3 = QS_{e2}$$

$$\frac{Q}{2}S_2 + \frac{Q}{2}S_3 = QS_{e2}$$

$$\frac{Q}{2}S_2 + \frac{Q}{2}S_2 = QS_{e2}$$

$$S_2 = S_{e2}$$

$$S_2 = S_3 = S_{e2}$$

$$S_2 = \frac{S_0}{1+kt_2}$$=423/(1+0,03*116,3)=94,23mg/L

$$E_2 = 1 - \frac{S_{e2}}{S_0}$$=1-94,23/423=0,7772=77,72%

$$E_2 < E_1$$