

Q1) The table1 shows the serum concentration profiles of a certain drug in patient X. Please specify the units for the PK parameters to get full credit.

- a) Determine if the elimination process is a first order or a zero order process. (Plot on a graph paper)
- b) Calculate K_e , the first order elimination rate constant.
- c) Calculate $AUC_{0-t_{last}}$ and $AUC_{0-\infty}$ by trapezoidal rule.
- d) Calculate the concentration of the drug X in serum at time 5hr.

time(hr)	conc (mg/l)
0	12.50
1	9.74
1.5	8.59
2	7.58
4	4.60
6	2.79
8	1.69
10	1.03
12	0.62

Q2 Derive the equation $k_e = 0.693/t_{1/2}$ for an i.v. bolus one compartment body model. $C = C_0 * \exp(-k_e * t)$

True or False

- a) When the change in amount of the drug in the body is related to the amount by the following equation $\frac{dX}{dt} = -K_e * X^0$, where X is the amount of the drug at a given time t, then we say the elimination is a zero order process. (T/F)
- b) Drugs with a low volume of distribution have a narrow therapeutic window. (T/F)
- c) When whole blood is collected in a heparinized tube and then centrifuged, the supernatant that is obtained is plasma. (T/F)