

Homework II

Student's Name:Student's ID:

Answer ALL the following questions.

1. The following data was obtained from a bolus intravenous injection of antibiotic to a patient weighting 70 kg at a dose of 37.55 mg.

Time (hr)	Plasma Conc. ($\mu\text{g/ml}$)
0.5	1.75
0.8	1.6
2.0	1.2
3.0	0.93
4.0	0.72
6.0	0.44
8.0	0.22
10.0	0.165

Plot the plasma conc. Of the drug versus time on two-cycle semi log. paper.

- Estimate the $t_{1/2}$ of the drug, k_d and C_o
- Estimate the total area under the plasma drug conc.-time curve.
- Calculate the volume of distribution.

- d. What will be the amount of drug remaining in the body after 7 hrs?

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2. A 60 kg man was given a single IV dose of a drug X at a dose 500 mg. Blood samples were taken at a various time. The following data were obtained.

Time (hr)	Plasma Conc. ($\mu\text{g/ml}$)
1.0	165
2.0	136
3.0	115
4.0	95
6.0	66.5
8.0	46
10.0	31.7
12.0	22

- a. Calculate and estimate the following: $t_{1/2}$, k_d , C_o , V_d
- b. Assuming the drug is no longer effective when levels decline to less than 50 mg/L. How many doses of the drug should this patient take every day?
- c. What will be the plasma level of the drug after 5 hrs?
- d. Predict what body water compartment this drug might occupy? And explain why you made this prediction.