PHAR 750 Fall 2007  Quiz #1A  October 5, 2007  25 points

1. Using the graph above, answer the following questions:
   a) Is the following data zero-order or 1st order elimination? (2 points).

   b) If the elimination rate constant is 0.291/hr, what is the t_{1/2} of glabridin? (3 points).

   $t_{1/2} = \frac{0.693}{k} = \frac{0.693}{0.291/hr} = 2.38\text{ hr}$

   c) What is the C_{max} and T_{max} for the oral dose of 5 mg/kg glabridin (give your best estimate)? (4 points).

   $C_{max} = \sim 15\text{ ng/ml}$
   $T_{max} = \sim 4\text{ hr}$

2. List at least one difference and similarity between the one-compartment and two-compartmental pharmacokinetic models. Also, give the general equation to determine drug plasma concentration (C_p) for each model. (8 points)
TRUE or FALSE for questions 3 - 6 below (2 points each).

2. It is not important to know the clinical diagnosis of the patient to optimize their drug therapy.
   [F] [X] It is

3. The elimination rate constant (k) decreases with increasing dose for drugs that display first-order pharmacokinetics.
   [E] [do not change]

4. The elimination rate constant (k_o) is dependent on the amount/concentration of drug in zero-order pharmacokinetics.
   \( t^{\frac{1}{2}} = \frac{Y_2 - Y_1}{X_2 - X_1} \) [do not change]

5. The half-life \( (t_{1/2}) \) remains the same with increasing dose for drugs that display linear first-order pharmacokinetics.
   [T]