جامعة بيرزيت
BIRZEIT UNIVERSITY

Homework 2

Bio pharmaceutics & Pharmacokinetics/PHAR434

Instructor Abdullah Rabba

Student name and I.D Muhammad Musleh /1162595

Notice: Please solve the following case (use clear handwriting, take a photo or scan it and upload on ITC)

A new antibiotic drug was given in a single intravenous bolus of 4 mg/kg to 5 healthy male adults ranging in age from 23 to 38 years (average weight 75 kg). The pharmacokinetics of the plasma drug concentration–time curve for this drug fits a one-compartment model. The equation of the curve that best fits the data is:

$$C_p = 78e^{-0.46t}$$

Determine the following (assume units of *mc*g/mL for *C*p and hours for *t*):

a. What is the *t*1/2?
b. What is the *V*D?
c. What is the plasma level of the drug after 4 hours?
d. How much drug is left in the body after 4 hours?
e. Predict what body water compartment this drug might occupy and explain why you made this prediction.
f. Assuming the drug is no longer effective when levels decline to less than 2 *mc*g/mL, when should you administer the next dose?