

Name: _____

SS#: _____

PHA 4120

First Exam Fall 1997

On my honor, I have neither given nor received unauthorized aid in doing this assignment.

Name

Question/Points

1. _____/5

2. _____/12

3. _____/5

4. _____/4

5. _____/5

6. _____/10

7. _____/10

8. _____/10

9. _____/8

10. _____/9

Name: _____

SS#: _____

1. The volume of distribution of a drug X is 40,000 L. Indicate which **one** of the following statements is (are) consistent with this observation (5 pts)
 - A ____ plasma protein binding is more pronounced than tissue binding
 - B ____ highly metabolized in the tissue
 - C ____ the drug does not leave the plasma
 - D ____ not at all bound to plasma proteins
 - E ____ drug is able to cross membranes

2. For each fluid below give the approximate volume you would expect in an adult person (12 pts)
 - Extracellular fluid

 - Total body water

 - plasma

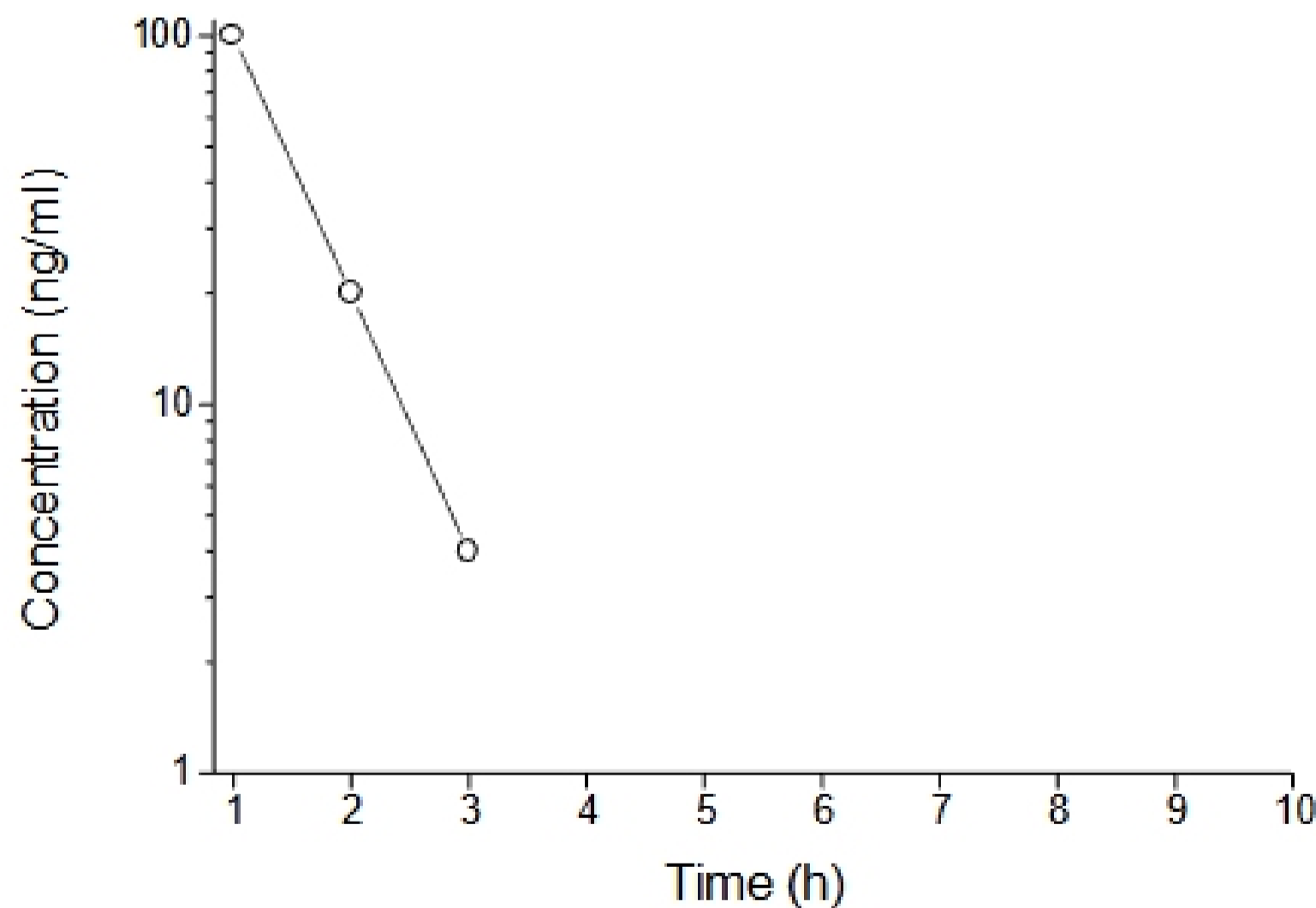
Name: _____

SS#: _____

3. For a typical 70-kg person, the volume of distribution of drug X is about 35 L. We assume that the plasma volume is 5 L, and the tissue volume is 30 L. Generally the unbound fraction in plasma and tissue is about 0.2. Plasma protein binding of drug X is reduced in patients with hypoalbuminemia. (5pts)

a) If the plasma protein binding decreases to 60% ($f_u=0.4$) what is the expected volume of distribution.

- b) Assume that this drug can be modeled after an i.v. bolus injection with a one compartment body model. The following plasma concentration time profile was observed in a typical patient. Indicate on the graph what concentration time profile would be expected in a patient with hypoalbuminemia. Consider also resulting changes in k_e .



4. The distribution of two drugs A & B into the brain is driven by permeability limitations. The distribution of drug B into the brain is driven by perfusion