Question #1.

H.H., a 60-year-old, 70 kg woman receiving 25mg/h of theophylline, has a steady-state theophylline level of 14mg/L. She is starting to take cimetidine. Should her theophylline dosing regimen be adjusted? If so, how?

Question #2.

During a phase I clinical trial, a single 500mg tablet of drug X was given orally. It was found that drug X has a total clearance of 80L/h and was only eliminated by CYP2D6 metabolism in the liver.

As the new member in the research team you are now asked to interpret these results.

T  F  This drug is a low extraction drug.

T  F  Drug X should not be administered together with CYP2D6 inducers since they will significantly affect the metabolism of drug X.

T  F  A change in plasma protein binding will affect the clearance of drug X.

T  F  A change in plasma protein binding will affect the bioavailability of drug X.

Question #3.

J.D. is a 80-year-old, 65kg female with liver cirrhosis. She was put lidocaine to treat her arrhythmia. Please calculate the loading necessary to achieve an initial plasma concentration of 3mg/L. What would be the maintenance dose necessary to achieve plasma steady-state concentrations of 3mg/L?

Question #4.

I.N., a 35-year-old female (C_{p, creat} = 1.3mg/dL), was diagnosed with congestive heart failure (CHF). She is 5’8” tall and weighs 65kg. At 9:30AM on the day of admission (day 1), I.N. was given a 0.75mg digoxin capsule for her CHF. From day 2 on, she was given 0.5mg digoxin orally (tablets) at 9:30AM.

Please predict the plasma concentration on day 4 at 9:30PM.