

✓ **Correct** 1/1 Points

13. **All the following are possible consequences of phase-I biotransformation reaction EXCEPT:**

- Production of a pharmacologically inactive metabolite
- Conversion of a pharmacologically inactive to an active substance
- Conversion of one pharmacologically active to another active substance
- Combination of a drug with an endogenous substance ✓
- Production of a toxic metabolite

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14. Conjugation of a drug with glucuronic acid:

*

- Increases its water solubility ✓
- Is an example of a phase-I biotransformation reaction
- Involves cytochrome P-450
- Occurs in the same rate in adults and in the newborn
- Usually results in increased activity of the drug

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15. Which of the following statements is **INCORRECT**:

*

- Unionized drug is lipid-soluble and diffusible.
- Ionized drug is lipid-insoluble and non-diffusible.
- Weak base drugs are best absorbed in the intestine
- Weak acid drugs become less ionized in an acidic medium
- Acidification of urine enhances renal reabsorption of weak base drugs ✓

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12. **Which of the following is an enzyme inducer?**

*

- cimetidine
- chloramphenicol
- rifampicin
- oestrogens
- erythromycin



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11. Drugs which are lipid soluble:

*

- do not usually penetrate CNS
- generally have very long elimination half lives
- are readily excreted by kidney without prior metabolism
- All of the above
- None of the above



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10. A 74-year-old man was admitted to the hospital for treatment of heart failure. He received 160 mcg of digoxin intravenously, and the plasma digoxin level was 0.4 ng/mL. If the desired plasma concentration of digoxin for optimal therapeutic activity in heart failure is 1.2 ng/ml, and the patient has an estimated V_d of 400 L, calculate the additional dose of digoxin needed for this patient to achieve the desired plasma concentration. *

A. 128 mcg

B. 160 mcg

C. 320 mcg

D. 480 mcg

E. 640 mcg



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7. Drug A is a weakly basic drug with a ($pK_a = 7.8$). If administered orally, at which of the following sites of absorption will the drug be able to readily pass through the membrane? *

- A. Mouth (pH approximately 7.0)
- B. Stomach (pH of 2.5)
- C. Duodenum (pH approximately 6.1)
- D. Jejunum (pH approximately 8.0)
- E. Ileum (pH approximately 7.0)



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8. A 40-year-old male patient (70 kg) was recently diagnosed with infection involving methicillin-resistant *S. aureus*. He received 2000 mg of vancomycin as an IV loading dose. The peak plasma concentration of vancomycin was 28.5 mg/L. The apparent volume of distribution is: *

A. 1 L/kg



B. 7 L/kg

C. 10 L/kg

D. 14 L/kg

E. 70 L/kg

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9. A 64-year-old female patient (60 kg) is treated with experimental Drug A for type 2 diabetes. Drug A is available as tablets with an oral bioavailability of 90%. If the V_d is 2 L/kg and the desired steady-state plasma concentration is 3.0 mg/L, which of the following is the most appropriate oral loading dose of Drug A? *

- A. 6mg
- B. 6.66mg
- C. 108 mg
- D. 360 mg
- E. 400 mg



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6. A 55-year-old man with chronic cardiac failure currently takes multiple medications, including digoxin.

He is brought to the emergency department because of slurred speech and inappropriate behavior. It turns out that he has not taken his digoxin for the last 2 weeks. The physician gives 125 microgram as standard dose. Twenty-four hours later, his serum levels were reported to be 2 ng/mL (= 2 microgram/L). The target therapeutic level is 0.8 ng/mL. What dose of digoxin should he receive? *

- (A) 25 mcg (microgram)
- (B) 50 mcg (microgram)
- (C) 75 mcg (microgram)
- (D) 100 mcg (microgram)
- (E) 125 mcg (microgram)



(E) 75%

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5. A 58-year-old man is recovering in the hospital following a heart attack. He is started on clopidogrel.

The initial loading dose, is higher than his normal daily maintenance dose. Which of the following represents the calculation for a maintenance dose? *

(A) = $0.7 \times V_d / t_{1/2}$

(B) = amount of drug in body/drug plasma concentration

(C) = $C_p \times CL / F$

(D) = $C_p \times V_d / F$



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4. A 16-year-old male high school football player takes 800 mg of ibuprofen after morning practice for a sore knee. Ibuprofen has a half-life of about 2 hrs. What percentage of the original plasma load of ibuprofen will remain in his blood when afternoon practice starts in 4 hrs? *

- (A) 0%
- (B) 12.5%
- (C) 25%
- (D) 50%
- (E) 75%



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1. A 27-year-old female with vulvovaginal candidiasis is given a one-time 100 mg dose of oral fluconazole. She has no other pertinent medical problems and takes no prescription medications. Administration of the medication results in a peak plasma concentration of 20 mcg(microgm)./mL. What is the apparent volume of drug distribution? *

(A) 1 L

(B) 3 L

(C) 5 L

(D) 10 L

(E) 50 L



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2. A patient receives a single dose of antibiotics following a prostate needle biopsy. He takes 500 mg of ciprofloxacin immediately after completion of the procedure. The half-life of the medication is 8 h. At approximately how many half-lives will it take for 90% of the drug to be excreted from the body? *

(A) 1.0

(B) 2.0

(C) 3.0

(D) 3.3

(E) 5.0



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3. A 29-year-old man presents to his primary care physician complaining of dysuria, urgency, and painful ejaculation. The patient has a past medical history of allergic rhinitis. Physical examination reveals a tender prostate. The patient is given a prescription of sulfamethoxazole to be taken daily (every 12 h) for 30 days. The half-life is 12 h. How long will it take for the medication to reach 90% of its final steady state level? *

(A) 10 h

(B) 20 h

(C) 30 h

(D) 40 h

(E) 50 h

