

TEST BANK**Chapter 1: Introduction to Pharmacology and the History of Drugs****Multiple Choice Questions**

1. Pharmacology is _____.
 - a. the study of how drugs are dispensed
Incorrect Feedback: The dispensing of drugs is only a small part of the field of pharmacology.
 - b. the study of pills, drugs, and medications
Incorrect Feedback: While part of pharmacology covers these items, the field of pharmacology covers much more.
 - c. the study of drugs and their interactions with living organisms
Feedback: Correct!
 - d. the study of plants, herbs, minerals, and animals
Incorrect Feedback: Some drugs come from these sources, but it is not the focus of the study of pharmacology.
2. The word *pharmacology* comes from _____.
 - a. the Dutch word *droog* and a suffix meaning *the study of*
Incorrect Feedback: The Dutch word *droog* is where we get the word *drug*, not *pharmacology*.
 - b. the Greek word *pharmakon* and a suffix meaning *the study of*
Feedback: Correct!
 - c. the Greek word *prophylaxis* and a suffix meaning *to study*
Incorrect Feedback: The Greek word *prophylaxis* means *to keep guard before*. Prophylaxis is used as a preventive method.
 - d. the Latin word *medicina* and a suffix meaning *the study of*
Incorrect Feedback: The Latin word *medicina* is where we get the word *medicine* or *medication*, not *pharmacology*.
3. Drugs have three medical uses. Which of the following is NOT one of those uses?
 - a. to diagnose disease
Incorrect Feedback: Diagnosing disease is one of the three medical uses for drugs.
 - b. to treat symptoms, signs, conditions, and diseases
Incorrect Feedback: Treating symptoms, signs, conditions, and diseases is one of the three medical uses for drugs.
 - c. to prevent disease
Incorrect Feedback: Preventing disease is one of the three medical uses for drugs.
 - d. to cause conditions or diseases
Feedback: Correct!
4. The medical use of drugs during radiological procedures and other types of medical tests to provide evidence of a disease process is known as _____.
 - a. a preventive use
Incorrect Feedback: The preventive use of drugs is to prevent the occurrence of diseases or conditions not to provide evidence of a disease process.
 - b. a diagnostic use
Feedback: Correct!
 - c. treating symptoms and signs of a disease
Incorrect Feedback: Drugs used during radiologic procedures and other types of

- medical tests are not for treating symptoms and signs of a disease.
- d. none of the above
Incorrect Feedback: One of these answers is correct.
5. The medicinal use of foxglove to make the drug digoxin (Lanoxin) is an example of a modern drug derived from _____.
- a. animals
Incorrect Feedback: Foxglove is not derived from an animal.
- b. minerals
Incorrect Feedback: Foxglove is not derived from a mineral.
- c. plants
Feedback: Correct!
- d. trace elements
Incorrect Feedback: Foxglove is not derived from trace elements.
6. The drug Premarin, a female hormone replacement used to treat the symptoms of menopause, is derived from _____.
- a. pregnant mares' urine
Feedback: Correct!
- b. margarine, oils, and olive oil
Incorrect Feedback: Premarin is not derived from margarine, oils, and olive oil.
- c. purified fat of processed sheep's wool
Incorrect Feedback: Premarin is not derived from lanolin from purified fat of processed sheep's wool.
- d. powdered rose hips
Incorrect Feedback: Premarin is not derived from powdered rose hips.
7. Which of the following is NOT a source of a drug used to treat diabetes mellitus?
- a. ground-up animal pancreas
Incorrect Feedback: Ground-up animal pancreas is the source of insulin for treating diabetes mellitus.
- b. Gila monsters
Incorrect Feedback: The saliva of the Gila monster is the source of the antidiabetic drug Byetta.
- c. pork
Incorrect Feedback: Ground-up pig pancreas is the source of insulin for treating diabetes mellitus.
- d. sheep
Feedback: Correct
8. It took a national tragedy to force a much-needed update of the Food and Drugs Act of 1906. The drug that caused this national tragedy was _____.
- a. Ayer's Cherry Pectoral, which was used to treat respiratory ailments
Incorrect Feedback: This drug did not cause the national tragedy, but was an example of a drug that contained an addictive substance.
- b. Cocaine Toothache Drops, which was used to treat toothache pain
Incorrect Feedback: This drug did not cause the national tragedy, but was an example of a drug that contained an addictive substance.
- c. sulfonamide, which was an early anti-infective drug

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Feedback: Correct!

- d. thalidomide, which was used to treat morning sickness

Incorrect Feedback: This drug did not cause the national tragedy because it was only available in Europe, but was an example of why foreign drugs are not automatically approved by the FDA.

9. As a result of a national tragedy, Congress passed The Food, Drug, and Cosmetic Act of 1938. One of the key parts of this act _____.

- a. required manufacturers to list their drugs in the *United States Pharmacopeia* or *National Formulary*

Incorrect Feedback: It was an amendment to The Food and Drugs Act of 1912 that stated that only drugs listed in these volumes could be prescribed.

- b. made it mandatory that drugs had a pleasing taste and odor

Incorrect Feedback: This was part of the reason for the national tragedy, not a result. The makers of the drug sulfonamide tested the taste and odor, but not the safety of the drug.

- c. required accurate labeling of drugs to prevent substitutions or mislabeling of ingredients

Incorrect Feedback: It was the amendment to The Food and Drugs Act of 1912 that ensured this, not the Food, Drug, and Cosmetic Act of 1938.

- d. stated that the government no longer needed proof of fraud to stop the sale of a drug

Feedback: Correct!

10. In response to criticism related to the time lag for drug approval, which act was passed in 1997?

- a. Compassionate Use IND

Incorrect Feedback: The Compassionate Use IND is an application that is filed with the FDA to prescribe a drug for a life-threatening disease; it does not deal with the time lag issue.

- b. Emergency Treatment Investigational New Drug (IND)

Incorrect Feedback: The Emergency Treatment Investigational New Drug is an application that is filed with the FDA to prescribe a drug for a life-threatening disease; it does not deal with the time lag issue.

- c. Food and Drug Administration (FDA) Modernization Act

Feedback: Correct!

- d. Health Insurance Portability and Accountability Act (HIPAA)

Incorrect Feedback: HIPAA deals with privacy and insurance; it does not deal with the time lag issue.

11. Prescription drugs are defined as those drugs _____.

- a. that meet clinical trial requirements and are approved by the FDA

Incorrect Feedback: This is not a complete description of a prescription drug.

- b. whose strength does not meet the requirements for over-the-counter use

Incorrect Feedback: This is not a complete description of a prescription drug.

- c. that are not safe to use except under professional medical supervision

Feedback: Correct!

- d. contain addictive properties which require professional medical supervision
Incorrect Feedback: This is a definition of a schedule drug rather than a prescription drug.
12. Which of the following statements concerning scheduled drugs is TRUE?
- a. Schedule I drugs are included, in small doses, in over-the-counter drugs.
Incorrect Feedback: Schedule I drugs have no currently accepted medical use.
- b. Schedule I drugs have the highest potential for abuse and addiction, while Schedule V drugs have the lowest.
Feedback: Correct!
- c. Schedule V drugs are not available under any circumstances, even with a prescription.
Incorrect Feedback: It is Schedule I drugs, not Schedule V drugs, that are not available under any circumstances. Schedule V drugs are available.
- d. Schedule V drugs have the highest potential for abuse and addiction, while Schedule I drugs have the lowest.
Incorrect Feedback: It is Schedule I drugs that have the highest potential for abuse and addiction, while Schedule V drugs have the lowest.
13. The Orphan Drug Act was passed to _____.
- a. facilitate the development of new drugs to treat rare diseases
Feedback: Correct!
- b. make the manufacturers of drugs accountable for substitution and mislabeling
Incorrect Feedback: Holding manufacturers accountable for substitution and mislabeling fell under the 1912 amendment to The Food and Drugs Act of 1906.
- c. require drug companies to provide an accurate list of the drug's ingredients
Incorrect Feedback: The 1912 amendment to The Food and Drugs Act of 1906 required the accurate labeling of drugs.
- d. speed up the approval process of new drugs
Incorrect Feedback: The Food and Drug Administration (FDA) Modernization Act gave the FDA the authority to accelerate the approval process for certain types of drugs.
14. The word *pharmacodynamics* is concerned with _____
- a. the molecular structure of drugs
Incorrect Feedback: Molecular pharmacology, not pharmacodynamics, studies the molecular structure of drugs.
- b. how the genetics of different people affect their response to drugs
Incorrect Feedback: Pharmacogenetics, not pharmacodynamics, is concerned with how the genetics of different people affect their response to drugs.
- c. how drugs produce their effects based on time and dose
Feedback: Correct!
- d. processes of absorption, distribution, metabolism, and excretion of drugs
Incorrect Feedback: Pharmacokinetics, not pharmacodynamics, is concerned with the absorption, distribution, metabolism, and excretion of drugs.
15. When analgesic drugs are used to control arthritis pain, this is an example of the _____ use of drugs.
- a. therapeutic
Feedback: Correct!

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- b. pharmacologic
Incorrect Feedback: The pharmacologic use of drugs is too broad of a concept and would include every drug and every use.
- c. preventive
Incorrect Feedback: Analgesic drugs are not used to prevent pain.
- d. diagnostic
Incorrect Feedback: Analgesic drugs are not used to diagnose pain.
16. One drug used to treat Alzheimer's disease was originally derived from ____.
- a. yams
Incorrect Feedback: Some estrogen hormone replacement therapy drugs are derived from yams.
- b. periwinkle
Incorrect Feedback: The drug vincristine to treat cancer is derived from periwinkle.
- c. daffodils
Feedback: Correct!
- d. autumn crocus
Incorrect Feedback: Colchicine to treat gout is derived from the autumn crocus.
17. Original plant sources of some commonly used drugs today include all of the following EXCEPT ____.
- a. oak tree
Feedback: Correct!
- b. rose hips
Incorrect Feedback: Rose hips are an original plant source for vitamin C.
- c. hot pepper plant
Incorrect Feedback: The hot pepper plant is an original plant source of capsaicin for topical pain relief.
- d. opium poppy
Incorrect Feedback: The opium poppy is an original plant source for morphine.
18. What common ingredient of topical skin drugs is derived from the purified fat of processed sheep's wool?
- a. vitamin C
Incorrect response: Vitamin C is derived from rose hips.
- b. lanolin
Feedback: Correct!
- c. aspirin
Incorrect Feedback: Aspirin was derived from willow bark.
- d. calcium
Incorrect Feedback: Calcium is a mineral.
19. Which drugs were introduced in the decade of the 1990s?
- a. penicillin (first antibiotic drug), Benadryl (first antihistamine drug), cortisone (first corticosteroid drug)
Incorrect Feedback: Penicillin was introduced in 1941; Benadryl was introduced in 1945, and cortisone was introduced in 1948.
- b. Thorazine (first antipsychotic drug), hydrocortisone (first topical corticosteroid drug), Librium (first antianxiety drug)
Incorrect Feedback: Thorazine was introduced in 1952, hydrocortisone was introduced in 1952, and Librium was introduced in 1957.
- c. Inderal (first beta-blocker drug), Tagamet (first H₂ blocker drug), levodopa (for Parkinsons's disease)
Incorrect Feedback: Inderal was introduced in 1967, Tagamet was introduced in 1977, and levodopa was introduced in 1970.

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- d. Proscar (for benign prostatic hypertrophy), Nicoderm (for stopping smoking), Viagra (for erectile dysfunction)
Feedback: Correct!
20. Penicillin was first introduced about the year ____.
- a. 1860
Incorrect Feedback: Penicillin was introduced much later than 1860.
- b. 1900
Incorrect Feedback: Penicillin was introduced much later than 1900.
- c. 1940
Feedback: Correct!
- d. 2000
Incorrect Feedback: Penicillin was introduced much earlier than 2000.
21. Aspirin was first introduced about the year ____.
- a. 1900
Feedback: Correct!
- b. 1940
Incorrect Feedback: Aspirin was introduced much earlier than 1940.
- c. 1960
Incorrect Feedback: Aspirin was introduced much earlier than 1960.
- d. 2000
Incorrect Feedback: Aspirin was introduced much earlier than 2000.
22. A drug used today for treating congestive heart failure ____.
- a. has been used since the thirteenth century
Feedback: Correct!
- b. is derived from the belladonna plant
Incorrect Feedback: A drug from the belladonna plant is not used to treat congestive heart failure.
- c. is derived from the opium plant
Incorrect Feedback: A drug from the opium plant is not used to treat congestive heart failure.
- d. is not derived from a natural source
Incorrect Feedback: A drug used to treat congestive heart failure is derived from a natural source.
23. The first monoclonal antibody drug Orthoclone OKT3 was developed in ____.
- a. 1896
Incorrect Feedback: The first monoclonal antibody drug was developed later than this.
- b. 1936
Incorrect Feedback: The first monoclonal antibody drug was developed later than this.
- c. 1986
Feedback: Correct!
- d. 2006
Incorrect feedback: The first monoclonal antibody drug was developed before this.
24. Which drug was historically introduced first?
- a. Tagamet for peptic ulcers (first H₂ blocker drug)
Incorrect Feedback: Tagamet was introduced in 1977.
- b. Morphine for pain, from crude opium
Feedback: Correct!
- c. Humulin (human insulin) (first recombinant DNA technology drug)
Incorrect Feedback: Humulin (human insulin) was introduced in 1982.
- d. AZT (first drug for HIV)
Incorrect Feedback: AZT was introduced in 1987.

25. The government agency responsible for regulating the manufacturing and dispensing of controlled substances is called the _____.
- a. Drug Enforcement Administration (DEA)
Feedback: Correct!
 - b. Food and Drug Administration (FDA)
Incorrect Feedback: The Food and Drug Administration (FDA) reviews drugs during clinical trials and evaluates their safety.
 - c. United States Pharmacopeia
Incorrect Feedback: The United States *Pharmacopeia* is a book that lists all the drugs that are approved.
 - d. Scheduled Drug Agency
Incorrect Feedback: There is no such governmental agency.
26. Currently, the burden of proof for showing that a drug is safe before it can be marketed is the responsibility of the _____.
- a. drug manufacturer
Feedback: Correct!
 - b. consumer
Incorrect Feedback: The consumer cannot prove that a drug is safe before it is marketed.
 - c. physician
Incorrect Feedback: The physician cannot prove that a drug is safe before it is marketed.
 - d. Food and Drug Administration (FDA)
Incorrect Feedback: The burden of proof used to lay with the government to show fraud on the part of the seller, but that was before the Food, Drug, and Cosmetic Act of 1938.
27. A schedule defines drugs by their _____.
- a. classification or category
Incorrect Feedback: A schedule is a classification or category, but not a definition.
 - b. potential for physical dependence
Incorrect Feedback: This is true, but it is not the only correct answer.
 - c. potential for psychological dependence
Incorrect Feedback: This is true, but it is not the only correct answer.
 - d. b and c
Feedback: Correct!
28. An example of a Schedule I drug is _____.
- a. aspirin
Incorrect Feedback: Aspirin is not a schedule drug. It is an over-the-counter drug with no potential for addiction.
 - b. Ambien
Incorrect Feedback: Ambien is a Schedule IV drug, not a Schedule I drug.
 - c. LSD
Feedback: Correct!
 - d. all of the above
Incorrect Feedback: Aspirin and Ambien are not Schedule I drugs.
29. The Controlled Substances Act created _____ categories of drugs based on their potential for addiction.
- a. seven
Incorrect Feedback: There are not seven categories of controlled substances.
 - b. three
Incorrect Feedback: There are not three categories of controlled substances.
 - c. five
Feedback: Correct!
 - d. ten

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- Incorrect Feedback: There are not ten categories of controlled substances.
30. The FDA Modernization Act _____.
a. gave the FDA the authority to accelerate the approval process for certain types of drugs
Incorrect Feedback: This is true, but it is not the only correct answer.
b. was signed in 1997 by then-president Clinton
Incorrect Feedback: This is true, but it is not the only correct answer.
c. can decrease the review time for critically needed drugs as well as for drugs for which the manufacturer pays a special fee
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
31. In response to the tragedy of babies born with seal limbs because of thalidomide, this legislation required drugs to be both safe and effective before being marketed.
a. Food and Drug Modernization Act of 1997
Incorrect Feedback: The FDA Modernization Act of 1997 came much later than the thalidomide tragedy.
b. Kefauver-Harris Amendment of 1962
Feedback: Correct!
c. Food, Drug, and Cosmetic Act of 1938
Incorrect Feedback: The Food, Drug, and Cosmetic Act of 1938 came before the thalidomide tragedy.
d. The Food and Drugs Act of 1906
Incorrect Feedback: The Food and Drugs Act of 1906 came before the thalidomide tragedy.
32. Complete this inscription that is commonly seen on drug package labels: "Caution: Federal law prohibits _____" or "Rx only."
a. the use of Schedule I drugs
Incorrect Feedback: Schedule I drugs are not available under any circumstances and are not mentioned on drug package labels.
b. the regulation of prescription drugs
Incorrect Feedback: This is not mentioned on drug package labels. The Food and Drug Administration (FDA) regulates prescription drugs and over-the-counter drugs.
c. dispensing by a nurse
Incorrect Feedback: Drug package labels do not refer to nurses or any other healthcare provider.
d. dispensing without a prescription
Feedback: Correct!
33. The belladonna plant was the original source of the drugs _____ that are still used today.
a. atropine and digoxin
Incorrect feedback: Atropine is from the belladonna plant, but digoxin is from the foxglove plant.
b. ephedrine and morphine
Incorrect feedback: Ephedrine is from the *Ephedra* shrub, and morphine is from the opium poppy plant.
c. atropine and scopolamine
Feedback: Correct!
d. colchicine and morphine
Incorrect Feedback: Colchicine is from the autumn crocus, and morphine is from the opium poppy plant.
34. Powdered rose hips from the rose plant are still used as a natural source of _____.
a. morphine

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- Incorrect Feedback: Morphine is from the opium poppy plant.
b. vitamin C
Feedback: Correct!
- c. insulin
Incorrect feedback: Insulin is from ground-up animal pancreas.
d. all of the above
Incorrect Feedback: Powdered rose hips are the natural source for only one of these drugs.
35. All of the following are minerals that are included in multivitamin supplements EXCEPT _____.
- a. iron
Incorrect Feedback: Iron is a mineral that is included in multivitamin supplements.
- b. calcium
Incorrect Feedback: Calcium is a mineral that is included in multivitamin supplements.
- c. zinc
Incorrect Feedback: Zinc is a mineral that is included in multivitamin supplements.
- d. vitamin C
Feedback: Correct!
36. Jamie Alvarez is going to fly in an airplane for the first time. She is afraid she might experience motion sickness, so she has decided to take the over-the-counter drug Dramamine. This is an example of _____.
- a. the preventive use of drugs
Feedback: Correct!
- b. the therapeutic use of drugs
Incorrect Feedback: Dramamine is not used therapeutically to treat nausea and vomiting once it has occurred.
- c. the diagnostic use of drugs
Incorrect Feedback: Dramamine is not used diagnostically to diagnose motion sickness.
- d. all of the above.
Incorrect Feedback: Dramamine only falls under one of these uses of drugs, not all of these uses.
37. The Health Insurance Portability and Accountability Act (HIPAA) of 1996 is concerned with the _____ of patient medical and drug information.
- a. validity
Incorrect Feedback: HIPAA does not address the validity of patient medical and drug information.
- b. identity
Incorrect Feedback: HIPAA does not address the identify of patient medical and drug information.
- c. security
Feedback: Correct!
- d. all of the above
Incorrect Feedback: HIPAA is not concerned with the validity and identify of patient medical and drug information.
38. The majority of drugs are used to control, improve, or cure symptoms, conditions, or diseases of a physiological or psychological nature. These drugs would be said to have a _____ use.
- a. preventive
Incorrect feedback: Drugs for preventive use are taken before symptoms and diseases occur.
- b. diagnostic
Incorrect feedback: Drugs for diagnostic use do not cure symptoms or diseases.

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- c. prescription
Incorrect feedback: Prescription drugs are not the only kinds of drugs used to cure symptoms or diseases.
- d. therapeutic
Feedback: Correct!
39. A prescription drug can be obtained with a _____.
a. written prescription from a physician
Incorrect Feedback: This is true, but it is not the only correct answer.
b. verbal order from a dentist
Incorrect Feedback: This is true, but it is not the only correct answer.
c. written prescription or verbal order from a healthcare professional whose license permits this
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
40. Which of these ancient peoples practiced pharmacology?
a. Sumerians and Egyptians
Incorrect Feedback: This is true, but it is not the only correct answer.
b. Chinese
Incorrect Feedback: This is true, but it is not the only correct answer.
c. Native Americans of North America and Aztec Indians of Mexico
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
41. If you had lived during the 1700s and 1800s, it would not have been unusual for you _____.
a. to have taken a drug that contained opium, morphine, or cocaine
Incorrect Feedback: This is true, but it is not the only correct answer.
b. to be addicted without knowing it after taking a drug for a common disease
Incorrect Feedback: This is true, but it is not the only correct answer.
c. to take a drug whose addictive ingredients were not listed on the label
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
42. Drug legislation was passed in the early 1900s to protect the public from _____.
a. unscrupulous drug sellers
Incorrect Feedback: This is true, but it is not the only correct answer.
b. prescription drugs
Incorrect Feedback: It was not until the Durham-Humphrey Amendment of 1951 that prescription drugs were defined.
c. worthless, mislabeled, and dangerous drugs
Incorrect Feedback: This is true, but it is not the only correct answer.
d. a and c
Feedback: Correct!
43. The first federal drug law was _____.
a. the Food, Drug and Cosmetic Act
Incorrect Feedback: This was not the first federal drug law as it was passed in 1938.
b. the Dietary Supplement Health and Education Act
Incorrect Feedback: This was not the first federal drug law as it was passed in 1994.
c. the Food and Drugs Act
Feedback: Correct!
d. the Food and Drug Administration Modernization Act

- Incorrect Feedback: This was not the first federal law as it was passed in 1997.
44. The 1951 Durham-Humphrey Amendment to the Food, Drug, and Cosmetic Act defined _____ drugs as those drugs that could only be given to patients under the care of a physician.
- a. dangerous
Incorrect Feedback: The Durham-Humphrey Amendment did not talk about dangerous drugs.
 - b. prescription
Feedback: Correct!
 - c. schedule
Incorrect Feedback: Schedule drugs were defined by the Controlled Substances Act, not the Durham-Humphrey Amendment.
 - d. all of the above
Incorrect Feedback: The Durham-Humphrey Amendment did not talk about dangerous or schedule drugs.
45. The FDA will allow a prescription drug to be reclassified as an over-the-counter (OTC) drug if _____.
- a. the prescription drug is too dangerous to use at its higher doses
Incorrect Feedback: If a prescription drug is too dangerous, the FDA will remove it from the market, not reclassify it as an over-the-counter drug.
 - b. patients can monitor their own conditions and don't need to have special monitoring or tests
Feedback: Correct!
 - c. there is enough public pressure after a drug tragedy
Incorrect Feedback: This is not one of the reasons for reclassifying a prescription drug to an OTC drug.
 - d. all of the above
Incorrect Feedback: One of these is a reason for reclassifying, but not all of them.
46. All of the following are advantages to reclassifying a prescription drug to be an over-the-counter drug (OTC) EXCEPT _____.
- a. the cost of the drug will be lower
Incorrect Feedback: This is an advantage for OTC drugs.
 - b. the patient will have better access to quick treatment
Incorrect Feedback: This is an advantage for OTC drugs.
 - c. there is a greater chance for drug-drug interactions
Feedback: Correct!
 - d. the patient will need fewer doctor visits
Incorrect Feedback: This is an advantage for OTC drugs.
47. The Controlled Substances Act of 1970 did all of the following EXCEPT _____.
- a. regulate controlled substances
Incorrect Feedback: It did do this.
 - b. introduce the word *narcotic*
Feedback: Correct!
 - c. divide potentially addictive drugs into categories
Incorrect Feedback: It did do this.
 - d. regulate schedule drugs
Incorrect Feedback: It did do this.
48. In 1843, Dr. Alexander Wood of Scotland created the first _____ and injected his patients with morphine.
- a. drug
Incorrect Feedback: The first drugs were created in ancient times, not 1843.
 - b. prescription

Incorrect Feedback: A prescription is not used to inject a drug.

c. syringe

Feedback: Correct!

d. antibiotic

Incorrect Feedback: An antibiotic is not used to inject a drug.

True/False Questions

49. The discipline of pharmacology impacts both your chosen career and your personal life.

True Feedback: Correct!

False Feedback: This is a true statement.

50. The study of pharmacology covers a broad spectrum of diverse, yet interrelated topics.

True Feedback: Correct!

False Feedback: This is a true statement.

51. The word *drug* can NOT be used interchangeably with the word *medicine*.

True Feedback: The word *drug* can be used interchangeably with the word *medicine*.

False Feedback: Correct!

52. The Egyptians applied moldy bread to abrasions, a practice that actually had some therapeutic basis.

True Feedback: Correct!

False Feedback: This is a true statement.

53. The opium poppy has been used for centuries as a painkiller and also as a recreational drug to induce euphoria and a trance-like state.

True Feedback: Correct!

False Feedback: This is a true statement.

54. Some estrogen replacement therapy drugs are derived from yams.

True Feedback: Correct!

False Feedback: This is a true statement.

55. Thyroid supplement drugs are composed of synthetic materials and the mineral iodine.

True Feedback: This is a false statement.

False Feedback: Correct!

56. The isolation of potassium from water in 1803 by a German pharmacist marked the beginning of modern drug treatment using chemically pure ingredients.

True Feedback: This is a false statement.

False Feedback: Correct!

57. In the early 1900s, cocoa butter was an ingredient in making hand-rolled suppositories.

True Feedback: Correct!

False Feedback: This is a true statement.

58. Drugs in the 1700s and 1800s were mostly useless, containing only water and oils, and they never contained addictive drugs.

True Feedback: This is a false statement.

False Feedback: Correct!

59. Herbal products and dietary supplements are regulated by the FDA.

True Feedback: This is a false statement.

- False Feedback: Correct!
60. The FDA regulates prescription drugs, but not over-the-counter (OTC) drugs.
True Feedback: This is a false statement.
False Feedback: Correct!
61. Prescription drugs must be obtained with a written order or a voice order.
True Feedback: Correct!
False Feedback: This is a true statement.
62. An OTC drug is defined as a drug that can be purchased without a prescription and is generally considered safe for consumers to use if the label's directions and warnings are followed carefully and all warnings are heeded.
True Feedback: Correct!
False Feedback: This is a true statement.
63. The FDA regulates prescription drugs, but the DEA regulates over-the-counter drugs.
True Feedback: This is a false statement.
False Feedback: Correct!
64. The FDA only allows physicians to prescribe approved drugs, even in the case of life-threatening diseases for which no alternative therapy exists.
True Feedback: This is a false statement.
False Feedback: Correct!
65. In order to prevent diseases, the American Academy of Pediatrics issues an annual immunization schedule listing the immunizations to be given to children before they enroll in school.
True Feedback: Correct!
False Feedback: This is a true statement.
66. A drug or a medicine can be thought of as any nonfood chemical substance that affects the mind or the body.
True Feedback: Correct!
False Feedback: This is a true statement.
67. The word *drug* can mean a medicine, but it can also refer to illicit or street drugs.
True Feedback: Correct!
False Feedback: This is a true statement.
68. The 1994 Dietary Supplement Health and Education Act gives the FDA the authority to regulate dietary supplements as drugs.
True Feedback: This is a false statement.
False Feedback: Correct!
69. On a prescription written for a schedule drug, the physician must include his/her DEA number.
True Feedback: Correct!
False Feedback: This statement is true.
70. As they did in the early 1900s, pharmacists today still daily prepare the drugs they dispense, but they now have the added duties of dispensing those drugs and providing patient education and information.
True Feedback: This is a false statement.
False Feedback: Correct!
71. Marijuana is a legal drug and it is sold as the prescription drug dronabinol (Marinol).
True Feedback: This is a false statement.
False Feedback: Correct!
72. Legend drugs are also known as over-the-counter drugs.
True Feedback: This is a false statement.
False Feedback: Correct!

73. Traditional Chinese herbal remedies have not been found to be effective or therapeutic according to Western standards of medicine.
True Feedback: This is a false statement.
False Feedback: Correct!
74. We know from reading the newspaper that cocaine is available illegally as a street drug, but cocaine is also a Schedule II drug with legitimate medical uses.
True Feedback: Correct!
False Feedback: This is a true statement.
75. The manufacturing, storage, dispensing, and disposal of controlled substances are strictly regulated by both federal and state laws.
True Feedback: Correct!
False Feedback: This is a true statement.
76. Pharmacology is one of the oldest branches of medicine.
True Feedback: Correct!
False Feedback: This is a true statement.
77. A schedule drug is also known as a *controlled substance*.
True Feedback: Correct!
False Feedback: This is a true statement.
78. Before approving a new drug, the FDA must weigh the inherent risks of the drug against its potential benefits.
True Feedback: Correct!
False Feedback: This is a true statement.
79. The Orphan Drug Act facilitates the development of drugs to treat patients who are poor and needy and cannot afford medical care.
True Feedback: This is a false statement.
False Feedback: Correct!
80. Usually, the over-the-counter version of a prescription drug is the same as the prescription drug except the recommended dose is half the dose of the prescription drug.
True Feedback: Correct!
False Feedback: This is a true statement.

Short Answer

81. The word _____ is derived from a Dutch word that means *dry*, and it refers to the use of dried herbs and plants as the first medicines.
82. The administration of a preventive drug is known as _____, from a Greek word meaning *to keep guard before*.
83. The symbol Rx, which comes from the Latin word _____ meaning *take*, indicates a prescription, the combining of ingredients to form a drug.
84. The Controlled Substance Act divided potentially addictive drugs into five categories or _____ based on their potential for physical or psychological dependence.
85. The study of the chemical structure of drugs and the actions of drugs at the molecular level within cells is known as _____ pharmacology.
86. The word _____ refers to a drug that is deliberately administered for its medicinal value as a preventive, diagnostic, or therapeutic agent.
87. The abbreviation FDA stands for the _____.
88. The abbreviation IND, as used in the Emergency Treatment IND or Compassionate Use IND, stands for _____.
89. In 1983, the topical prescription drug _____ was the first prescription drug approved for use as an over-the-counter drug.
90. Define these abbreviations.

Project:

DEA _____

IND _____

FDA _____

OTC _____

Matching Questions

91. Group A

Match the terms with their proper definitions.

Column 1

Column 2

- | | |
|---------------------|---|
| 1. pharmacodynamics | A. how the genetic makeup of different people affects their responses to certain drugs |
| 2. pharmacogenetics | B. description of how drugs move through the body in the processes of absorption, distribution, metabolism, and excretion |
| 3. pharmacogenomics | C. using drugs to affect the body therapeutically |
| 4. pharmacokinetics | D. the mechanism of action by which drugs produce their effects (desired or undesired) based on time and dose |
| 5. pharmacotherapy | E. using genome technology to discover new drugs |

92. Group B

Match the examples with their correct use.

Column 1

Column 2

- | | |
|--|---------------------------|
| 1. vaccinations given to immunize children | A. prevent diseases |
| 2. radiopaque dye used during x-ray procedures | B. diagnose disease |
| 3. antibiotics to kill bacteria and cure an infection conditions, and diseases | C. treat symptoms, signs, |
| 4. insulin to treat diabetes mellitus | |
| 5. contraceptive pills taken to prevent pregnancy | |

Essay Questions

93. The FDA approves a prescription drug being reclassified as an over-the-counter drug if one of four criteria are met. List one of the four criteria that needs to be met.

94. List and describe one of the incentives given to manufacturers under the Orphan Drug Act to encourage them to develop drugs for rare diseases.

95. Provide a brief comparison between the definitions of these words: drug, medicine, and prescription drug.

96. What was the Supreme Court's decision concerning marijuana in May 2001?

Chapter 2: Drug Design, Testing, Manufacturing, and Marketing**Multiple Choice Questions**

1. Stem cells are cells that are capable of _____.
- creating a cell with stems from which new cells can grow
Incorrect Feedback: Stem cells do not create cells with stems.
 - developing into immature cells
Incorrect Feedback: Stem cells already are immature cells.
 - differentiating into any type of body tissue
Feedback: Correct!

- d. manufacturing vectors that carry genes into affected cells
Incorrect Feedback: The use of vectors is related to gene therapy, not stem cells.
2. Which drug name accurately describes its molecular structure and distinguishes it from all other drugs?
- a. brand name
Incorrect Feedback: The brand name, or trade name, is specifically designed to be easy for physicians and patients to remember, not to describe its molecular structure.
- b. chemical name
Feedback: Correct!
- c. generic name
Incorrect Feedback: Each drug has a generic name, but it does not describe its molecular structure.
- d. trade name
Incorrect Feedback: The trade name does not describe the drug's molecular structure.
3. In the past, without the use of computers, designing a new drug by changing the molecular structure of an existing drug was ____.
- a. a quick process of reassigning molecules
Incorrect Feedback: Without the use of computers, designing drugs was not quick.
- b. a slow process of trial and error
Feedback: Correct!
- c. nonexistent as physicians didn't know about chemical structures
Incorrect Feedback: Even before computers, physicians did know about chemical structures.
- d. the only way new drugs could be created because drug manufacturers had exhausted other avenues
Incorrect Feedback: There was only one way that was known.
4. Using computers to design new drugs involves _____, which is the study of the chemical structures of drugs and their actions at the molecular level within a cell.
- a. genetics
Incorrect Feedback: Genetics is the basis for gene therapy and designing new drugs.
- b. molecular pharmacology
Feedback: Correct!
- c. pharmacodynamics
Incorrect Feedback: Pharmacodynamics is the mechanism of action by which drugs produce their effects (desired or undesired) based on time and dose. It does not involve computers.
- d. recombinant pharmacology
Incorrect Feedback: Recombinant DNA technology uses enzymes in test tubes, not computers, to splice DNA and direct the production of particular drugs.
5. In 1982, which drug became the first recombinant DNA technology drug to be approved by the FDA?
- a. The semisynthetic penicillin known as ampicillin, which was fermented in

vats

Incorrect Feedback: Penicillin and ampicillin were not created using recombinant DNA technology.

- b. diazepam (Valium)
Incorrect Feedback: Diazepam (Valium) was created from chlordiazepoxide (Librium), but not by recombinant DNA technology.
- c. human insulin (Humulin)
Feedback: Correct!
- d. Taxol (chemotherapy drug)
Incorrect Feedback: Taxol was originally derived from the needles of the Pacific yew tree, not from recombinant DNA technology.
6. Information from the human genome has led to the development of the subspecialty areas of _____ in research and drug design.
- a. pharmacogenetics and pharmacogenomics
Feedback: Correct!
- b. pharmacodynamics and pharmacology
Incorrect Feedback: Information on the human genome has led to the development of pharmacodynamics but has not led to the general field of pharmacology.
- c. recombinant DNA technology and computers
Incorrect Feedback: Information on the human genome has not led to the development of either recombinant DNA technology or computers.
- d. pharmacology and stem cell therapy
Incorrect Feedback: Information on the human genome has not led to the development of pharmacology or stem cell therapy.
7. From the moment of its discovery or design, every drug has a _____ name that is assigned by the International Union of Pure and Applied Chemistry (IUPAC).
- a. brand
Incorrect Feedback: The brand name, or trade name, is created by the drug company, not the IUPAC.
- b. chemical
Feedback: Correct!
- c. generic
Incorrect Feedback: The drug company, working together with the United States Adopted Names (USAN) Council, not the IUPAC, determines a drug's generic name.
- d. trade
Incorrect Feedback: The trade name, or brand name, is created by the drug company, not the IUPAC.
8. Which of the following is registered with the U.S. Patent Office as a registered trademark?
- a. chemical name
Incorrect Feedback: A drug's chemical name is assigned by the IUPAC, not the U.S. Patent Office.
- b. generic name
Incorrect Feedback: The drug company, working together with the United States

- Adopted Names (USAN) Council, not the U.S. Patent Office, determines a drug's generic name.
- c. molecular structure
Incorrect Feedback: A drug's molecular structure is part of the drug's makeup, and is not registered as a trademark.
- d. trade name
Feedback: Correct!
9. In 2001, the first embryonic stem cell was manipulated to become a _____.
a. bone marrow cell
Incorrect Feedback: Stem cell therapy has been used to replenish bone marrow, but bone marrow was not the first embryonic stem cell manipulation.
- b. cell to treat Alzheimer's disease
Incorrect Feedback: Alzheimer's is one of the diseases that researchers hope to cure in the future using stem cell research.
- c. mature blood cell
Feedback: Correct!
- d. retinal cell
Incorrect Feedback: The world's first gene therapy, not stem cell therapy, was used to correct an inherited disorder of the retina in 2007.
10. Which of the following involves using a drug on several hundred or several thousand ill patients in exactly the same way as it will be used once it is on the market?
a. clinical trials, phase I
Incorrect Feedback: During phase I, about 10 to 100 healthy volunteers are used to study a drug.
- b. clinical trials, phase II
Incorrect Feedback: In phase II, the drug is given to about 50 to 500 patients who actually have the disease that the drug is intended to treat.
- c. clinical trials, phase III
Feedback: Correct!
- d. *in vivo* testing
Incorrect Feedback: *In vivo* testing is a general designation for any testing done on animals and humans.
11. Each drug is assigned a 10-digit code, broken up into three segments. Which of the following is NOT information that can be obtained from the 10-digit code?
a. the name of the drug company
Incorrect Feedback: The first segment of the 10-digit code does identify the drug company.
- b. the drug type
Feedback: Correct!
- c. the drug's specific strength/dose
Incorrect Feedback: The second segment of the 10-digit code does identify the drug's specific strength/dose.
- d. the package size and type
Incorrect Feedback: The third segment of the 10-digit code does identify the drug's package size and type.
12. Once the FDA gives final approval for drug marketing, the drug company creates a

Project:

- _____.
- a. chemical name
Incorrect Feedback: The chemical name is assigned by the IUPAC, not the drug company.
 - b. generic name
Incorrect Feedback: The generic name is developed by both the drug company and the U.S. Adopted Names Council before the FDA gives final approval for marketing.
 - c. molecular name
Incorrect Feedback: A drug does not have a molecular name, but uses a chemical name instead to describe the drug's molecular composition.
 - d. trade name
Feedback: Correct!
13. The drug name that is a registered trademark is the _____.
- a. generic name
Incorrect Feedback: The generic name is not a registered trademark.
 - b. chemical name
Incorrect Feedback: The chemical name is not a registered trademark.
 - c. brand name
Feedback: Correct!
 - d. all of the above
Incorrect Feedback: Only one of the answers is correct.
14. All of the following are reasons why a trade name drug is spelled a certain way. Identify the reason that is NOT true.
- a. The spelling of the trade name indicates the length of the drug's patent.
Feedback: Correct!
 - b. The spelling of the trade name indicates the drug's source.
Incorrect Feedback: The spelling of some trade names does indicate the drug's source.
 - c. The spelling of the trade name indicates the disease process it is used to treat.
Incorrect feedback: The spelling of some trade names does indicate the disease process the drug is used to treat.
 - d. The spelling of the trade name indicates how often the drug should be taken.
Incorrect feedback: The spelling of some trade names does indicate how often the drug should be taken.
15. The brand name of the drug Lithobid was selected to indicate _____.
- a. the name of the drug manufacturer
Incorrect Feedback: The name Lithobid does not indicate the name of the drug manufacturer.
 - b. how often the drug is to be given
Feedback: Correct!
 - c. the amount of the active ingredient
Incorrect Feedback: The name Lithobid does not indicate the amount of the active ingredient

- d. the disease the drug is used to treat
Incorrect Feedback: The name Lithobid does not indicate the disease the drug is used to treat.
16. Drugs can be created or designed using all of the following techniques EXCEPT _____.
- a. discovery in nature
Incorrect Feedback: Drugs are created by discovery in nature.
- b. observing the toxic effects
Feedback: Correct!
- c. computer-aided design
Incorrect Feedback: Drugs are created by computer-aided design.
- d. recombinant DNA technology
Incorrect Feedback: Drugs are created by recombinant DNA technology.
17. In clinical trials, the control group receives the _____.
- a. trade name drug
Incorrect Feedback: The control group does not receive the trade name drug.
- b. placebo
Feedback: Correct!
- c. chemical name drug
Incorrect Feedback: The control group does not receive the chemical name drug.
- d. generic name drug
Incorrect Feedback: The control group does not receive the generic name drug.
18. The patent on a new drug is in effect for _____ years.
- a. 5
Incorrect Feedback: A drug patent is not in effect for five years.
- b. 12
Incorrect Feedback: A drug patent is not in effect for 12 years.
- c. 17
Feedback: Correct!
- d. 23
Incorrect Feedback: A drug patent is not in effect for 23 years.
19. There are _____ phases of human testing for new drugs.
- a. two
Incorrect Feedback: There are more than two phases to human testing.
- b. three
Feedback: Correct!
- c. five
Incorrect Feedback: There are fewer than five phases to human testing.
- d. seven
Incorrect Feedback: There are fewer than seven phases to human testing.
20. Recombinant DNA technology involves _____.
- a. gene splicing
Incorrect Feedback: This is true, but it is not the only correct answer.
- b. genetic engineering
Incorrect Feedback: This is true, but it is not the only correct answer.
- c. DNA spliced into a bacterial cell

- Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
21. *In vivo* testing is _____.
a. testing is done in test tubes
Incorrect Feedback: *In vivo* testing is not done in test tubes.
b. similar to *in vitro* testing
Incorrect Feedback: *In vivo* testing is not similar to *in vitro* testing.
c. done prior to *in vitro* testing
Incorrect Feedback: *In vivo* testing is not done prior to *in vitro* testing.
d. None of the above
Feedback: Correct!
22. Inert ingredients in a drug _____.
a. are known as fillers
Incorrect Feedback: This is true, but it is not the only correct answer.
b. can affect drug bioavailability
Incorrect Feedback: This is true, but it is not the only correct answer.
c. are known as binders
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
23. The United States Adopted Names (USAN) Council _____.
a. gives the final approval for marketing of a drug
Incorrect Feedback: The FDA, not the USAN, gives final approval for marketing of a drug.
b. works with the drug company to determine the generic name for a drug
Feedback: Correct!
c. selects the generic and trade names for all drugs
Incorrect Feedback: The USAN does not select the trade names for drugs.
d. names all new chemical and molecular substances
Incorrect Feedback: The International Union of Pure and Applied Chemistry (IUPAC), not the USAN, assigns the chemical name.
24. Which of the following statements is FALSE?
a. There is only one generic drug name related to a specific chemical name.
Incorrect Feedback: This statement is true.
b. The trade name is specifically designed to be easy for physicians and patients to remember.
Incorrect Feedback: This statement is true.
c. The drug's original trade name can be used by other companies after the patent expires.
Feedback: Correct!
d. The spellings of generic drugs that belong to the same drug category often reflect their similar chemical structure.
Incorrect Feedback: This statement is true.
25. What does the therapeutic index indicate?
a. the therapeutic potential for this new drug

- Incorrect Feedback: The therapeutic potential for the drug is evaluated by the drug company and the FDA and is not related to the therapeutic index.
- b. the margin of safety between the therapeutic and toxic doses
Feedback: Correct!
- c. the drug's effectiveness and likely approval by the FDA
Incorrect Feedback: The therapeutic index relates to the drug's margin of safety, not whether the drug will be effective and approved.
- d. the bioavailability of the drug
Incorrect Feedback: The therapeutic index relates to the drug's margin of safety, not its bioavailability.
26. The first recombinant DNA technology drug approved by the FDA was _____.
- a. an over-the-counter drug
Incorrect Feedback: Recombinant DNA technology is not used to produce over-the-counter drugs.
- b. a drug for HIV
Incorrect Feedback: The first drug for HIV was AZT, but it was not produced by recombinant DNA technology.
- c. a drug from pregnant mares' urine
Incorrect Feedback: The drug from pregnant mares' urine, a natural source (not recombinant DNA technology), is Premarin.
- d. a human version of insulin
Feedback: Correct!
27. This drug contains a double-strength dose, as shown by its trade name.
- a. Bactrim DS
Feedback: Correct!
- b. Kay Ciel
Incorrect Feedback: This trade name indicates the ingredients in the drug—potassium (K) and chloride (Cl).
- c. Pronestyl-SR
Incorrect Feedback: This trade name indicates that this is a sustained-release drug (SR).
- d. Tylenol w/ Codeine No. 2
Incorrect Feedback: This trade name indicates the amount of a particular active ingredient (codeine).
28. Both the ethical and the tissue rejection issues of stem cell therapy can be avoided if _____.
- a. embryonic stem cells are used
Incorrect Feedback: The use of embryonic stem cells to make a mature red blood cell ignited an ethical controversy.
- b. umbilical cord blood is used
Incorrect Feedback: Any source of cells that does not belong to the patient raise the issue of tissue rejection.
- c. the patient's own bone marrow or blood is used
Feedback: Correct!
- d. all of the above
Incorrect Feedback: Not all of these are true.

29. The Human Genome Project _____.
a. led to the development of computer-aided design of drugs
Incorrect Feedback: Computer-aided design of drugs was in use before the Human Genome Project was undertaken.
b. mapped all 3.2 billion parts of the human genome
Feedback: Correct!
c. was a result of stem cell therapy
Incorrect Feedback: The Human Genome Project was not a result of stem cell therapy.
d. determined what the names of new genetic drugs should be
Incorrect Feedback: The Human Genome Project is not related to the naming of drugs.
30. The chemical name of a drug _____.
a. is too lengthy and complicated for everyday use by healthcare professionals
Feedback: Correct!
b. is only used by researchers and consumers
Incorrect Feedback: The chemical name is only used by drug companies and researchers.
c. is the same as the generic name of the drug
Incorrect Feedback: The chemical name is not the same as the generic name of a drug.
d. all of the above
Incorrect Feedback: Only one of the answers is correct.
31. All of these trade names reflect the disease condition the drugs are used to treat EXCEPT _____.
a. Dermasil
Feedback: Correct!
b. Pepcid
Incorrect Feedback: This does reflect the disease condition it is used to treat: peptic ulcers.
c. Azmacort
Incorrect Feedback: This does reflect the disease condition it is used to treat: asthma.
d. Rythmol
Incorrect Feedback: This does reflect the disease condition it is used to treat: an irregular heart rhythm.
32. What incentive does the FDA give to drug companies that agree to do clinical trials of their drugs on children?
a. a cash back refund
Incorrect Feedback: The FDA does not give a cash back refund to drug companies.
b. speeding up the process for getting a trademark for the drug
Incorrect Feedback: A trademark is issued by the U.S. Patent Office, not the FDA.
c. a six-month extension on their new drug patent
Feedback: Correct!
d. allowing the drug companies to market the drug to children

- Incorrect Feedback: If a drug is tested on children and approved by the FDA it would automatically be allowed to be marketed to children.
33. Placebos commonly are _____.
a. injections of sterile normal saline
Incorrect response: This is true, but it is not the only correct answer.
b. genetically engineered drugs
Incorrect response: A placebo is a drug that has no therapeutic effect. Genetically engineered drugs always have a therapeutic effect.
c. sugar pills
Incorrect response: This is true, but it is not the only correct answer.
d. a and c
Feedback: Correct!
34. A moisture-absorbing packet of silica gel, known as _____, is something that would be added to a drug container during the manufacturing process.
a. pharmacogenomics
Incorrect Feedback: Pharmacogenomics uses genome technology to discover new drugs; this is not related to the manufacturing process.
b. a vector
Incorrect Feedback: A vector is something such as a virus that carries a gene into a body cell; it is not related to the manufacturing process.
c. an isomer
Incorrect Feedback: An isomer is a drug with the same chemical formula as another drug; it is not related to the manufacturing process.
d. a desiccant
Feedback: Correct!
35. Post-marketing surveillance _____.
a. is a type of direct-to-consumer advertising
Incorrect Feedback: Direct-to-consumer advertising is not related to post-marketing surveillance.
b. is performed by the Federal Trade Commission
Incorrect Feedback: The Federal Trade Commission regulates the advertising of over-the-counter drugs, but does not do post-marketing surveillance.
c. involves adding a National Drug Code to each drug package
Incorrect Feedback: There is a National Drug Code on each drug package, but it is put there to identify the drug manufacturer, drug strength, and package size and type, not to do post-marketing surveillance.
d. is done by the drug company and the FDA to monitor drug safety
Feedback: Correct!
36. All of the following are examples of new drugs discovered in the environment EXCEPT _____.
a. a placebo used in double-blind studies
Feedback: Correct!
b. a chemotherapy drug derived from yew tree needles
Incorrect Feedback: This is an example of a drug discovered in the environment.
c. cephalosporin antibiotic drugs from a fungus in a sewer outlet
Incorrect Feedback: This is an example of a drug discovered in the environment.

- d. an antituberculosis drug from the stomach of a sick chicken
Incorrect Feedback: This is an example of a drug discovered in the environment.
37. A dextrorotary drug _____.
a. is an isomer
Incorrect Feedback: This is true, but it is not the only correct answer.
b. has a right-facing image for its molecular structure
Incorrect Feedback: This is true, but it is not the only correct answer.
c. example is that of dextromethorphan
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
38. When designing drugs, a computer can _____.
a. display the molecular structure of any drug in its database
Incorrect Feedback: This is true, but it is not the only correct answer.
b. identify chemicals that would probably not be successful in treating a particular disease, which saves time and money
Incorrect Feedback: This is true, but it is not the only correct answer.
c. rotate any molecule in three dimensions on the computer screen
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
39. Using recombinant DNA technology, which substance has been made into a recombinant DNA technology drug?
a. clotting factors
Incorrect Feedback: This is true, but it is not the only correct answer.
b. erythropoietin
Incorrect Feedback: This is true, but it is not the only correct answer.
c. human growth factor
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!

True/False Questions

40. An isomer is a drug that has the same chemical formula as another drug, but has those atoms arranged in a different way.
True Feedback: Correct!
False Feedback: This is a true statement.
41. Once a drug has received its final approval from the FDA, its ingredients, doses, manufacturing process, labeling, and packaging cannot be changed.
True Feedback: Correct!
False Feedback: This is a true statement.
42. The advertising of both prescription and OTC drugs is regulated by the FDA.
True Feedback: This is a false statement.
False Feedback: Correct!
43. Even though drug manufacturers are held to the linguistic standards of the FDA, some trade name drugs are often difficult to spell.
True Feedback: This is a false statement.

- False Feedback: Correct!
44. No matter how a drug was originally discovered or designed, it must be thoroughly tested by the FDA before it can be marketed.
True Feedback: This is a false statement.
False Feedback: Correct!
45. Generic drugs as well as trade name drugs that are in the same drug form and have the same dose strength must all contain exactly the same active ingredients and must be able to be administered in the same way.
True Feedback: Correct!
False Feedback: This is a true statement.
46. A drug company is protected by a 17-year patent on any new drug that is approved by the FDA. However, part of the 17-year patent period is lost during the testing process.
True Feedback: Correct!
False Feedback: This is a true statement.
47. Once a drug has been approved by the FDA, the drug is guaranteed to stay on the market indefinitely because it has received FDA approval.
True Feedback: This is a false statement.
False Feedback: Correct!
48. Many drugs still in use today were originally taken from plant, animal, or mineral sources hundreds or even thousands of years ago.
True Feedback: Correct!
False Feedback: This is a true statement.
49. The Recombinant DNA Advisory Committee is a group of physicians and pharmacists who review the clinical trials of genetically engineered new drugs and make recommendations to the FDA.
True Feedback: Correct!
False Feedback: This is a true statement.
50. The animal phase of drug testing precedes testing on humans.
True Feedback: Correct!
False Feedback: This is a true statement.
51. The pharmacodynamics of a drug are tested during the human phase of drug testing.
True Feedback: This is a false statement.
False Feedback: Correct!
52. The higher the number of the therapeutic index, the more desirable it is, because it indicates that the drug has a wide margin of safety.
True Feedback: Correct!
False Feedback: This is a true statement.
53. While it is physiologically impossible for a placebo to exert any pharmacological effect, patients often report a decrease in certain types of symptoms after taking a placebo.
True Feedback: Correct!
False Feedback: This is a true statement.
54. Every drug company must provide the FDA with a complete list of all prescription drugs they currently have on the market.
True Feedback: Correct!
False Feedback: This is a true statement.

55. In double-blind studies, each patient receives both the drug and a placebo.
 True Feedback: This is a false statement.
 False Feedback: Correct!
56. In a double-blind study, the physician-investigator is the only one who knows which patients are taking a drug and which patients are taking a placebo.
 True Feedback: This is a false statement.
 False Feedback: Correct!
57. A placebo uses the power of suggestion to produce changes in the body that mimic the pharmacologic action of an actual drug.
 True Feedback: Correct!
 False Feedback: This is a true statement.
58. Genetic engineering came about as a result of deciphering the human genome.
 True Feedback: This is a false statement.
 False Feedback: Correct!
59. A drug company may evaluate thousands of different chemicals before finding one that moves successfully through all phases of testing and is finally approved by the FDA for release and marketing.
 True Feedback: Correct!
 False Feedback: This is a true statement.

Short Answer Questions

60. In gene therapy, a normal version of the gene is linked to a harmless virus, known as a _____, that carries the gene into body cells affected by the disease.
61. When animal studies are completed, the drug manufacturers submit an IND application to the FDA. The abbreviation IND stands for _____.
62. There are three phases of human testing, which together are known as _____.
63. A _____, a drug that has no pharmacologic effect, is often used in double-blind studies during phase III clinical trials.
64. Once phase III is completed, the drug company submits all of its documentation on the drug to the FDA in the form of a NDA and waits for a final FDA decision for approval or denial. The abbreviation NDA stands for _____.
65. DTC marketing has become common, beginning with magazine ads and moving to television. The abbreviation DTC stands for _____.
66. The _____ of the active drug ingredient can be particularly crucial in drugs with a low therapeutic index.
67. Define these abbreviations.
 FDA _____
 DTC _____
 TI _____
 IND _____
 NDC _____

68. Darlene Ellis has been prescribed the drug Nasalcrom. From the trade name of the drug, you can tell that the drug is used to treat this part of her body: _____.

Matching Questions

69. Group A

Match the terms with their proper definitions.

- | Column 1 | Column 2 |
|---------------------------------|--|
| 1. frequency distribution curve | A. relative margin of safety between the |

- dose that produces a therapeutic effect and the dose that produces a lethal effect in animals
- | | | |
|--|----|--|
| 2. half-life | B. | shows the number of people who responded or do not respond to a drug and at what doses. |
| 3. median effective dose (ED ₅₀) | C. | the dose at which 50 percent of the animals tested had toxic levels of the drug |
| 4. median toxicity dose (TD ₅₀) | D. | the dose at which 50 percent of the animals tested show a therapeutic response to the drug |
| 5. therapeutic index (TI) | E. | the time required for drug levels in the serum to decrease from 100 percent to 50 percent. |

70. Group B

Match the drug name with its discovery process.

- | Column 1 | Column 2 |
|----------------------------|--|
| 1. diazepam (Valium) | A. a totally new chemical created through genetic DNA manipulation |
| 2. Aranesp | B. a totally new chemical derived from molecular manipulation of a drug that is already in use |
| 3. fexofenadine (Allegra) | C. a totally new chemical substance discovered in the environment, from plants, animals, or the soil |
| 4. human insulin (Humulin) | |
| 5. streptomycin | |

Essay Questions

71. In addition to concerns about unexpected adverse effects of drugs, the FDA also removes certain batches of drugs from the market because of manufacturing defects. Name three manufacturing defects that would be the reasons for a drug recall.
72. Briefly explain the difference between *in vivo* testing and *in vitro* testing.
73. Briefly explain how a double-blind study is performed using a control group, a placebo, and drug group.

Chapter 3: Drug Forms

Multiple Choice Questions

1. A solid drug form that contains the active drug (as a dried powder) plus inert ingredients to provide bulk is known as a/an _____.
 a. capsule
 Incorrect Feedback: A capsule comes in two forms, either a gelatin shell or a two-piece, hard shell, not a solid drug form.
- b. ointment
 Incorrect Feedback: An ointment is a semisolid emulsion of oil and water, not a solid drug form
- c. tablet
 Feedback: Correct!
- d. emulsion
 Incorrect Feedback: An emulsion is a type of solution, not a solid drug form.
2. What type of tablet has an indented line running across it so that it can be easily broken into equal pieces?
 a. caplet
 Incorrect Feedback: Caplets are coated tablets in the form of an elongated

- capsule. They do not have an indented line running across them.
- b. enteric
Incorrect Feedback: An enteric tablet is covered with a special coating that resists stomach acid. An enteric tablet does not have an indented line running across it.
- c. scored
Feedback: Correct!
- d. troche
Incorrect Feedback: A troche is an elongated tablet that has a base of sugar and disintegrates into a paste to release the drug topically in the mouth. It does not have an indented line running across it.
3. A drug's trade name will often include abbreviations such as CR, LA, SR, or XL. These abbreviations indicate which type of tablet?
- a. caplets
Incorrect Feedback: These abbreviations do not indicate that the drug is a caplet.
- b. enteric
Incorrect Feedback: These abbreviations do not indicate that the drug is enteric.
- c. slow-release
Feedback: Correct!
- d. troche
Incorrect Feedback: These abbreviations do not indicate that the drug is a troche.
4. Which drug form comes in two different varieties: a soft gelatin shell and a two-piece hard shell?
- a. capsule
Feedback: Correct!
- b. cream
Incorrect Feedback: A cream is a semisolid emulsion of oil and water. It does not have a shell.
- c. ointment
Incorrect Feedback: An ointment is a semisolid emulsion of oil and water. It does not have a shell.
- d. tablet
Incorrect Feedback: A tablet is a solid drug form that contains the active drug. There are several types of tablets, but none are in a shell.
5. The powdered form of drugs can be administered in several different ways. Which of the following is NOT one of the routes of administration used for a powdered drug form?
- a. inhaled into the lungs
Incorrect Feedback: Powdered drugs do come in a canister that is activated and the powder is inhaled into the lungs (Tinactin).
- b. inserted into a body cavity
Feedback: Correct!
- c. sprayed on skin
Incorrect Feedback: Powdered drugs can be sprayed onto the skin (Tinactin).
- d. sprinkled topically
Incorrect Feedback: Powdered drugs can be sprinkled topically onto the skin (Tinactin).

6. The category of solutions includes several different drug forms. Which of the following is NOT a type of solution?
- a. mousse
Incorrect Feedback: A mousse is a type of solution.
 - b. emulsion
Incorrect Feedback: An emulsion is a type of solution.
 - c. foam
Incorrect Feedback: A foam is a type of solution.
 - d. suspension
Incorrect Feedback: Suspensions are not a type of solution.
7. Solutions come in several different forms. Which of the following statements is NOT a description of one of the forms of solutions?
- a. The drug is in fat globules dispersed uniformly throughout a water base.
Incorrect Feedback: This describes an emulsion, which is a solution.
 - b. The drug is in a thickened water base with added sugar and flavoring.
Incorrect Feedback: This describes a syrup, which is a solution.
 - c. The drug is fine, undissolved particles that settle to the bottom upon standing.
Feedback: Correct!
 - d. The drug is in a water and alcohol base.
Incorrect Feedback: This describes a tincture, which is a solution.
8. Syrups are _____.
- a. sour and more viscous than elixirs
Incorrect Feedback: Syrups are not sour.
 - b. sour and thinner than elixirs
Incorrect Feedback: Syrups are sweet and they are thick.
 - c. sweeter and more viscous than elixirs
Feedback: Correct!
 - d. sweeter and thinner than elixirs
Incorrect Feedback: Syrups are sweet, but they are not thinner than elixirs.
9. Foams are _____.
- a. solutions that contain a drug in a water base
Incorrect Feedback: This is true, but it is not the only correct answer.
 - b. expanded by tiny aerosol bubbles
Incorrect Feedback: This is true, but it is not the only correct answer.
 - c. expelled from a container when they are used
Incorrect Feedback: This is true, but it is not the only correct answer.
 - d. all of the above
Feedback: Correct!
10. Suppositories are used to treat patients with _____.
- a. diarrhea
Incorrect Feedback: Patients with diarrhea are not treated with suppositories.
 - b. eye infections
Incorrect Feedback: Eye infections are treated with special topical

- ophthalmic drops or oral drugs, not suppositories.
- c. heart disease
Incorrect Feedback: Suppositories are not used to treat heart disease.
- d. vomiting
Feedback: Correct!
11. Which of the following is NOT a specialized type of tablet?
- a. caplet
Incorrect Feedback: Caplets are a specialized type of tablet.
- b. effervescent
Incorrect Feedback: Effervescent tablets are a specialized type of tablet.
- c. lozenge
Incorrect Feedback: A lozenge is a specialized form of tablet.
- d. elixir
Feedback: Correct!
12. The word *viscous* is used to describe a liquid drug. The word *viscous* means _____.
- a. clear or transparent
Incorrect Feedback: *Viscous* does not mean *clear or transparent*.
- b. thick or nonwatery
Feedback: Correct!
- c. powdered
Incorrect Feedback: *Viscous* does not mean *powdered*.
- d. watery or thin
Incorrect Feedback: *Aqueous*, not *viscous*, means *watery or thin*.
13. Most over-the-counter drugs used to treat coughs are in the drug form of a/an _____.
- a. elixir
Incorrect Feedback: Elixirs are used for pediatric or elderly patients who cannot swallow a tablet or capsule. They are not specifically used to treat coughs.
- b. ampule
Incorrect Feedback: An ampule is a drug container, not a drug form.
- c. syrup
Feedback: Correct!
- d. tincture
Incorrect Feedback: Tinctures are never taken internally.
14. When a tablet is scored across its top surface, that indicates _____.
- a. that it contains a narcotic drug
Incorrect Feedback: Narcotic drugs do not all have a scored area across their tops.
- b. the mark of a particular drug manufacturer
Incorrect Feedback: A scored tablet is not the mark of a particular drug manufacturer.
- c. that it contains a double-strength dose
Incorrect Feedback: A double-strength tablet is not scored across its top.
- d. that it can be broken into two or more doses
Feedback: Correct!
15. Enteric-coated tablets _____.
- a. provide a slow release of the drug
Incorrect Feedback: Slow-release tablets provide a slow release of the drug.

- b. are made to dissolve in the stomach
Incorrect Feedback: Enteric-coated tablets are not made to dissolve in the stomach.
- c. are made to dissolve in the small intestine
Feedback: Correct!
- d. are coated so they are easy to swallow
Incorrect Feedback: Enteric-coated tablets are coated, but the reason is not so that they are easy to swallow.
16. A solution containing fine, undissolved particles of a drug that settle to the bottom of the container is called a/an _____ .
- a. suspension
Feedback: Correct!
- b. elixir
Incorrect Feedback: An elixir is a solution that does not settle to the bottom of the container.
- c. spray
Incorrect Feedback: A spray is a solution that does not settle to the bottom of the container.
- d. liquid
Incorrect Feedback: A liquid is a solution that does not settle to the bottom of the container.
17. Monica Thompson's antacid drug bottle has this inscription on the label: "Shake Well Before Using." That is because this drug is a/an _____ .
- a. suspension
Feedback: Correct!
- b. emulsion
Incorrect Feedback: An emulsion does not need to be shaken before use.
- c. syrup
Incorrect Feedback: A syrup does not need to be shaken before use.
- d. troche
Incorrect Feedback: A troche does not need to be shaken before use.
18. An emulsifying agent is added to a drug in the form of a cream _____ .
- a. in order to keep the oil and water mixed together
Feedback: Correct!
- b. in order to create a new drug form of an ointment
Incorrect Feedback: Ointments are not created from creams.
- c. so that the cream can be used topically in the eye
Incorrect Feedback: Only specially formulated ointments, not creams, can be used in the eye.
- d. so that it will exert a systemic effect
Incorrect Feedback: Creams exert only a local, not a systemic, effect.
19. Powdered drugs can be found in all of these EXCEPT in _____ .
- a. a canister
Incorrect Feedback: Powdered drugs do come in canisters.
- b. an ampule
Feedback: Correct!

- c. a capsule
Incorrect Feedback: Powdered drugs are in some capsules.
- d. a vial
Incorrect Feedback: Powdered drugs are in vials.
20. The word *aqueous* means _____, while the word *viscous* means _____ .
- a. topical; skin
Incorrect Feedback: These two words are not related to the words *aqueous* and *viscous*.
- b. liquid; solid
Incorrect Feedback: These two drug forms are not related to the words *aqueous* and *viscous*.
- c. intravenous; oral
Incorrect Feedback: These two routes of administration are not related to the words *aqueous* and *viscous*.
- d. watery; thick
Feedback: Correct!
21. Your friend asks you if you can identify the name of the drug he is taking. He shows you a purple capsule with gold bands. You tell him that this is the drug _____.
- a. Valium
Incorrect Feedback: Valium has a tiny, V-shaped opening in the center of the tablet.
- b. Zantac
Incorrect Feedback: Zantac is a pink, baseball-diamond-shaped tablet.
- c. Cialis
Incorrect Feedback: Cialis is a mustard-colored teardrop-shaped tablet.
- d. Nexium
Feedback: Correct!
22. Which of the following drug trade names is NOT in the form of a bead, wafer, or device?
- a. Septopal
Incorrect Feedback: Septopal is in the form of beads.
- b. Nexium
Feedback: Correct!
- c. Gliadel
Incorrect Feedback: Gliadel is in the form of a wafer.
- d. Mirena
Incorrect Feedback: Mirena is in the form of a T-shaped device.
- True/False Questions
23. Both a foam and a mousse are expanded by tiny aerosol bubbles when they are expelled from the container.
True Feedback: Correct!
False Feedback: This is a true statement.
24. The main purpose of a scored tablet is so that the tablet can be easily broken into pieces to produce an accurate, increased dose.
True Feedback: This is a false statement
False Feedback: Correct!

25. An enteric-coated tablet is covered with a special coating that resists the alkaline environment of the stomach acid but dissolves in the acid environment of the small intestine.

True Feedback: This is a false statement.

False Feedback: Correct!

26. Both ointments and creams are semisolid emulsions of oil and water. In ointments, the main ingredient is water; in creams, the main ingredient is oil.

True Feedback: This is a false statement.

False Feedback: Correct!

27. Both ointments and creams are applied topically to either the skin or the eyes.

True Feedback: This is a false statement.

False Feedback: Correct!

28. A lotion is a suspension of a drug in an oil base.

True Feedback: This is a false statement.

False Feedback: Correct!

29. Lotions are absorbed into the skin and exert a local, not systemic, drug effect.

True Feedback: Correct!

False Feedback: This is a true statement.

30. Solutions don't ever need to be mixed or shaken, as the drug concentration is always the same in every part of the solution, even after prolonged standing.

True Feedback: Correct!

False Feedback: This is a true statement.

31. Syrups are solutions that contain the drug in a thickened water base with added sugar and flavoring, but do not contain alcohol.

True Feedback: Correct!

False Feedback: This is a true statement.

32. Gels are solutions that contain fine, undissolved particles dispersed uniformly throughout a thickened water base.

True Feedback: Correct!

False Feedback: This is a true statement.

33. The drugs in transdermal patches are designed to have a topical effect on the skin and not exert a systemic effect on the body.

True Feedback: This is a false statement.

False Feedback: Correct!

34. Before a drug can receive final approval by the FDA, the drug company must clearly state in what form or forms the drug will be manufactured.

True Feedback: Correct!

False Feedback: This is a true statement.

35. Some drugs are ineffective if they are given in a particular drug form or they can seriously injure the patient if administered in the wrong drug form.

True Feedback: Correct!

False Feedback: This is a true statement.

36. Regardless of who manufactures a drug in tablet form, all tablets are either round or oval shaped.

True Feedback: This is a false statement.

False Feedback: Correct!

37. Ointments used in the eye must be specially formulated so that they do not cause irritation when applied to the eye.
True Feedback: Correct!
False Feedback: This is a true statement.
38. Lotions are absorbed into the skin and exert a system effect on the body, and not just a localized effect.
True Feedback: This is a false statement.
False Feedback: Correct!
Source: [[textbook page]]
39. A powder is a finely ground form of a drug that can be found within capsules.
True Feedback: Correct!
False Feedback: This is a true statement.
40. Intralipid intravenous fat solution is an example of an emulsion.
True Feedback: Correct!
False Feedback: This is a true statement.
41. The drug form pastille is also known as a troche.
True False
True Feedback: Correct!
False Feedback: This is a true statement.
42. Studies have shown that patients usually take their prescribed drugs accurately 100 percent of the time.
True Feedback: This is a false statement.
False Feedback: Correct!
43. A transdermal patch consists of a drug reservoir, a porous membrane through which the drug can pass, and an adhesive layer to hold it to the skin.
True Feedback: Correct!
False Feedback: This is a true statement.
44. Suppositories can be given via the oral, vaginal, or rectal route.
True Feedback: Correct!
False Feedback: This is a true statement.
45. Because it is easy to confuse different drugs, the Food and Drug Administration (FDA) advises patients who take more than one drug to be able to tell them apart by size, shape, color, imprint, or drug form.
True Feedback: Correct!
False Feedback: This is a true statement.
46. A vial can be used only once, and the unused drug must be discarded, because it contains no preservative.
True Feedback: This is a false statement.
False Feedback: Correct!

Short Answer Questions

47. A/an _____ tablet is one that is dissolved in a glass of water before being swallowed (e.g., Alka-Seltzer for a head cold).
48. Some over-the-counter drugs come as a _____, a drug form that is never swallowed, but is allowed to slowly disintegrate into a liquid form that releases the drug topically in the mouth and throat.
49. An _____ is a solution that contains the drug in a water and alcohol base with

Project:

added sugar and flavoring. It is commonly used for pediatric and elderly patients who cannot swallow tablets or capsules.

50. A _____ is a solution that contains the drug in a water and alcohol base, but is never taken internally.

51. A _____ is composed of a solid base of glycerin or cocoa butter containing the drug. They are usually used rectally and vaginally, but they can be administered orally.

52. A _____ is a coated tablet in the form of an elongated capsule.

53. A _____ is an oblong tablet that has a base of sugar and disintegrates into a paste to release the drug topically in the mouth.

54. In written prescriptions, the word *tablet* is sometimes abbreviated as _____ or _____.

55. In written prescriptions, the word *capsule* is sometimes abbreviated as _____ or _____.

56. A _____, a French word that means *little lump of bread*, is another name for a troche.

57. An _____ is a small, slender glass container with a main body and a narrow, extended top.

58. Define these abbreviations and short forms.

LA _____

SR _____

tab _____

cap _____

Matching Questions

59. Match the drug name in Column 1 with its drug form in Column 2.

Column 1

Column 2

1. Calamine

A. capsule

2. Ecotrin

B. cream

3. hydrocortisone

C. foam

4. Kenalog

D. gel

5. Maalox

E. lotion

6. Muse

F. ointment

7. MetroGel

G. pellet, bead, or wafer

8. Nexium

H. syrup

9. Robitussin

I. suspension

10. Rogaine

J. enteric-coated tablet

Essay Questions

60. Briefly explain how a transdermal patch delivers a drug dose to the patient.

61. Drugs that come in the forms of ointments, creams, and lotions have various characteristics. Describe the characteristic feel, appearance, and consistency for just one of these three drug forms: ointment or cream or lotion.

62. Many over-the-counter drugs for pain are no longer manufactured in capsule form. Explain why.

Chapter 4: Routes of Administration and the Drug Cycle

Multiple Choice Questions

1. Which of the following is NOT one of the steps involved in the drug cycle?

- a. absorption

- Incorrect Feedback: Absorption is one of the steps involved in the drug cycle.
- b. distribution
- Incorrect Feedback: Distribution is one of the steps involved in the drug cycle.
- c. metabolism
- Incorrect Feedback: Metabolism is one of the steps involved in the drug cycle.
- d. secretion
- Feedback: Correct!
2. When a drug is applied directly to the skin, eyes, or ears, it is administered via the _____ route.
- a. oral
- Incorrect Feedback: The oral route of administration is giving drugs through the mouth.
- b. sublingual
- Incorrect Feedback: The sublingual route of administration is giving drugs underneath the tongue.
- c. topical
- Feedback: Correct!
- d. transdermal
- Incorrect Feedback: The transdermal route of administration is applied to the skin, but not the eyes and ears.
3. Which is the most convenient route of administration and the one most commonly used?
- a. injection
- Incorrect Feedback: Injection is not the most common or convenient route of administration.
- b. oral
- Feedback: Correct!
- c. rectal
- Incorrect Feedback: Rectal is not the most common route of administration.
- d. tablets
- Incorrect Feedback: Tablets are a form of a drug, not a route of administration.
4. Which route of administration is chosen when the patient is vomiting and a drug cannot be given by injection?
- a. intradermal
- Incorrect Feedback: Intradermal is a type of injection.
- b. parenteral
- Incorrect Feedback: Parenteral administration includes all routes that involve injection.
- c. rectal
- Feedback: Correct!
- d. sublingual
- Incorrect Feedback: The sublingual administration route delivers drugs by placing them under the tongue. This cannot be done if the patient is vomiting.
5. Which of the following is NOT a part of the parenteral route of administration?
- a. intradermal
- Incorrect Feedback: Intradermal is one of the parenteral routes of administration.

- b. intramuscular
Incorrect Feedback: Intramuscular is one of the parenteral routes of administration.
- c. endotracheal
Feedback: Correct!
- d. intravenous
Incorrect Feedback: Intravenous is one of the parenteral routes of administration.
6. For most drug forms, absorption involved three steps. Which of the following is NOT one of the three steps of absorption?
- a. absorb
Incorrect Feedback: Absorb is one of the three steps of absorption.
- b. disintegrate
Incorrect Feedback: Disintegrate is one of the three steps of absorption.
- c. dissolve
Incorrect Feedback: Dissolve is one of the three steps of absorption.
- d. excrete
Feedback: Correct!
7. The process of drug metabolism is accomplished in the _____, the principal organ of metabolism.
- a. intestines
Incorrect Feedback: The intestines are not the principal organ of metabolism.
- b. kidneys
Incorrect Feedback: The kidneys are not the principal organ of metabolism.
- c. liver
Feedback: Correct!
- d. stomach
Incorrect Feedback: The stomach is not the principal organ of metabolism.
8. An intravenous drug can be administered in three different ways. Which of the following is NOT one of the three types of intravenous drug administration?
- a. bolus
Incorrect Feedback: A bolus is a type of intravenous drug administration.
- b. I.V. piggyback
Incorrect Feedback: I.V. piggyback is a type of intravenous drug administration.
- c. I.V. infusion
Incorrect Feedback: I.V. infusion is a type of intravenous drug administration.
- d. port
Feedback: Correct!
9. Oral drugs that are in a liquid form do NOT go through which of the following steps?
- a. absorption
Incorrect Feedback: Oral drugs in a liquid form do have to go through absorption from the stomach.
- b. disintegration
Feedback: Correct!
- c. dissolving
Incorrect Feedback: Oral drugs in a liquid form do have to dissolve into the surrounding body fluids.

- d. excretion
Incorrect Feedback: All drugs go through excretion.
10. Which method of drug administration is only used during emergency resuscitation?
- a. intra-articular
Incorrect Feedback: The intra-articular route is used to administer a drug into a joint once every few weeks or months, or at any time necessary.
- b. intracardiac
Feedback: Correct!
- c. intravesical
Incorrect Feedback: This route is used for the administration of chemotherapy drugs into the bladder to treat bladder cancer, which is not an emergency.
- d. intramuscular
Incorrect Feedback: Intramuscular injection is into a muscle and the drug must then be absorbed; this is not suitable for an emergency.
11. Following drug administration, most drugs go through a well-defined sequence of steps before being excreted from the body. Which of the following demonstrates the correct order of those steps?
- a. absorption, distribution, metabolism, excretion
Feedback: Correct!
- b. distribution, metabolism, absorption, excretion
Incorrect Feedback: Absorption is out of order in this sequence.
- c. excretion, metabolism, distribution, absorption
Incorrect Feedback: Excretion and absorption are out of order in this sequence.
- d. metabolism, distribution, absorption, excretion
Incorrect Feedback: Absorption and distribution are out of order in this sequence.
12. Drugs given orally are absorbed from the intestines into the blood of the portal vein. Before this vein empties into the general circulation, it passed through the ____.
- a. intestines
Incorrect Feedback: The portal vein does not pass through the intestines.
- b. kidney
Incorrect Feedback: The portal vein does not pass through the kidney.
- c. liver
Feedback: Correct!
- d. skin
Incorrect Feedback: The portal vein does not pass through the skin.
13. Patients with renal disease and elderly patients with decreased levels of kidney function due to aging are prescribed ____.
- a. lower doses of drugs
Feedback: Correct!
- b. higher doses of drugs
Incorrect Feedback: Because of the poor renal function, higher doses of drugs would be toxic.
- c. the same dose of drugs
Incorrect Feedback: An adjustment in the drug dose must be made for patients with renal disease and decreased kidney function.

- d. different routes of administration
Feedback: The route of administration is not going to change the fact that the drug still has to be excreted by the kidneys.
14. The memory aid NAVEL (naloxone, atropine, Valium, epinephrine, lidocaine) helps you remember which drugs can be administered _____.
- a. through an endotracheal tube
Feedback: Correct!
- b. nasally
Incorrect Feedback: There is no memory aid to tell which drugs can be administered nasally.
- c. buccally
Incorrect Feedback: There is no memory aid to tell which drugs can be administered buccally.
- d. topically
Incorrect Feedback: There is no memory aid to tell which drugs can be administered topically.
15. All of the following are drugs that are given intravenously EXCEPT _____.
- a. chemotherapy drugs
Incorrect Feedback: Chemotherapy drugs are given intravenously.
- b. peritoneal dialysis fluids for patients with kidney failure
Feedback: Correct!
- c. Valium to control continuous epileptic seizures
Incorrect Feedback: Valium is given intravenously.
- d. drugs such as thiopental (Pentothal) for the induction of general anesthesia
Incorrect Feedback: thiopental (Pentothal) is given intravenously.
16. Which of these are special words related to the intravenous route of administration?
- a. piggyback and port
Incorrect Feedback: This is true, but it is not the only correct answer.
- b. bolus and push
Incorrect Feedback: This is true, but it is not the only correct answer.
- c. infusion and drip
Incorrect Feedback: This is true, but it is not the only correct answer.
- d. all of the above
Feedback: Correct!
17. Any liquid drug that can be given by the oral route can also be given by any of these routes EXCEPT _____.
- a. jejunostomy
Incorrect Feedback: A liquid drug can be given via the jejunostomy route.
- b. nasogastric
Incorrect Feedback: A liquid drug can be given by the nasogastric route.
- c. transdermal
Feedback: Correct!
- c. gastrostomy
Incorrect Feedback: A liquid drug can be given by the gastrostomy route.
18. Which of the following routes CANNOT be used to administer drugs to an unconscious patient?

- a. oral
Feedback: Correct!
- b. rectal
Incorrect Feedback: The rectal route is used when the patient is vomiting or is unconscious.
- c. intravenous
Incorrect Feedback: The intravenous route is used when the patient is unconscious.
- d. none of the above
Incorrect Feedback: This is a false statement.
19. Sublingual administration of a drug involves placing it _____.
a. on the skin
Incorrect Feedback: On the skin is topical administration.
b. under the tongue
Feedback: Correct!
c. in the vagina
Incorrect Feedback: In the vagina is vaginal administration.
d. under the skin
Incorrect Feedback: Under the skin is intradermal administration.
20. Which of the following drugs is given by subcutaneous injection?
a. insulin for diabetes mellitus
Incorrect Feedback: This is true, but it is not the only correct answer.
b. heparin
Incorrect Feedback: This is true, but it is not the only correct answer.
c. allergy shots
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
21. Which route of administration is commonly abbreviated as PO?
a. oral
Feedback: Correct!
b. parenteral
Incorrect Feedback: There is no official abbreviation for the parenteral route.
c. rectal
Incorrect Feedback: There is no official abbreviation for the rectal route.
d. inhalation
Incorrect Feedback: There is no official abbreviation for the inhalation route.
22. Parenteral administration of a drug commonly includes all of the following routes EXCEPT _____.
a. intramuscular
Incorrect Feedback: The parenteral route includes intramuscular administration.
b. intravenous
Incorrect Feedback: The parenteral route includes intravenous administration.
c. oral
Feedback: Correct!
d. subcutaneous

- Incorrect Feedback: The parenteral route includes subcutaneous administration.
23. The first-pass effect describes the _____.
a. metabolism of drugs by the stomach
Incorrect Feedback: The first-pass effect does not involve the stomach.
b. metabolism of drugs by the liver
Feedback: Correct!
c. absorption of drugs by the stomach
Incorrect Feedback: The first-pass effect does not involve the stomach.
d. excretion of drugs by the kidneys
Incorrect Feedback: The first-pass effect does not involve the kidneys.
24. Which of the following statements is FALSE?
a. Different forms of a drug are appropriate for different routes of administration.
Incorrect Feedback: This statement is true.
b. Intradermal injection injects the drug into the subcutaneous fat.
Feedback: Correct!
c. Some drugs are ineffective when administered by a certain route.
Incorrect Feedback: This statement is true.
d. Drugs may seriously injure the patient if administered by the wrong route.
Incorrect Feedback: This statement is true.
25. Which of the following statements is FALSE?
a. Each route of administration has distinct advantages and disadvantages.
Incorrect Feedback: This statement is true.
b. Tablets, capsules, and liquids can all be given orally.
Incorrect Feedback: This statement is true.
c. When you are administering a topical drug, as you face the patient, your right-hand side corresponds to the patient's right-hand side.
Feedback: Correct!
d. Topical ophthalmic ointment is specially formulated to be nonirritating to the eye; it is not interchangeable with topical ointments used on the skin.
Incorrect Feedback: This statement is true.
26. Which of the following statements is FALSE?
a. A tuberculin syringe is calibrated in units.
Feedback: Correct!
b. When an intradermal injection is positioned correctly, the tip of the needle is still visible through the epidermis.
Incorrect Feedback: This is a true statement.
c. An intramuscular injection is placed in the belly (area of greatest mass) of the muscle.
Incorrect Feedback: This statement is true.
d. Drugs injected intramuscularly are absorbed more quickly than with subcutaneous administration.
Incorrect Feedback: This is a true statement.
27. All of the following are accepted sites for an intramuscular injection in adults EXCEPT _____.
a. ventrogluteal
Incorrect Feedback: This is an accepted intramuscular injection site.

Project:

- b. subcutaneous
Feedback: Correct!
- c. deltoid
Incorrect Feedback: This is an accepted intramuscular injection site.
- d. dorsogluteal
Incorrect Feedback: This is an accepted intramuscular injection site.
28. All of the following drugs are administered topically EXCEPT _____.
a. nitroglycerin tablets or spray
Feedback: Correct!
- b. antibiotic ointment for a skin injury
Incorrect Feedback: This is an example of a topical drug.
- c. timoptic eye drops for glaucoma
Incorrect Feedback: This is an example of a topical drug.
- d. antibiotic drops for an ear infection
Incorrect Feedback: This is an example of a topical drug.
29. Which of the following drugs is manufactured as a transdermal patch?
a. Serevent, a bronchodilator drug for asthma
Incorrect Feedback: Serevent comes as a powder, not as a transdermal patch.
- b. Monistat for a yeast infection
Incorrect Feedback: Monistat comes as a cream, not a transdermal patch.
- c. synthetic lung surfactant to treat respiratory distress in premature infants
Incorrect Feedback: Surfactant is given via an endotracheal tube.
- d. Nicoderm CQ to stop smoking
Feedback: Correct!
30. When a drug is given by inhalation, it is absorbed _____.
a. through the stomach and intestine
Incorrect Feedback: Oral drugs, not inhaled drugs, are absorbed through the stomach and intestine.
- b. through the nasal cavity
Incorrect Feedback: Drugs given by the nasal route, not inhaled drugs, are absorbed in the nasal cavity.
- c. through the alveoli of the lungs
Feedback: Correct!
- d. through the breast milk
Incorrect Feedback: Drugs are excreted in the breast milk, and this is not related to drugs given by inhalation.
31. Drugs that are not absorbed after oral administration _____.
a. are metabolized in the stomach
Incorrect Feedback: The stomach is not the site of drug metabolism.
- b. can be used to treat conditions in the stomach or intestine
Feedback: Correct!
- c. are not therapeutically effective
Incorrect Feedback: Drugs not absorbed after oral administration can be therapeutically effective.
- d. are excreted in the urine
Incorrect Feedback: Drugs that are not absorbed never enter the blood and so can

- never become part of the urine and excreted.
32. Drug doses for an elderly patient are decreased because of the patient's decreased _____.
- a. need for medication
Incorrect Feedback: Elderly patients usually have an increased need for medication, not a decreased need.
 - b. activity levels
Incorrect Feedback: A decreased activity level is not directly related to drug doses for an elderly person.
 - c. mental ability to administer correct doses
Incorrect Feedback: Drug doses are not decreased for an elderly person just because they have a decreased mental ability.
 - d. liver and kidney function
Feedback: Correct!
33. Drugs circulate in the blood bound to _____.
- a. red blood cells
Incorrect Feedback: Drugs do not bind to red blood cells.
 - b. white blood cells
Incorrect Feedback: Drugs do not bind to white blood cells.
 - c. albumin
Feedback: Correct!
 - d. plasma
Incorrect Feedback: Plasma is a liquid and does not bind to drugs.
34. All of the following drugs are given via the rectal route of administration EXCEPT _____.
- a. Monistat cream for a yeast infection
Feedback: Correct!
 - b. Tylenol suppositories for a fever
Incorrect Feedback: This drug is given by rectal administration.
 - c. Anusol cream for hemorrhoids
Incorrect Feedback: This drug is given by rectal administration.
 - d. Proctofoam-HC for ulcerative colitis
Incorrect Feedback: This drug is given by rectal administration.
35. An equivalent word for *metabolism* is _____.
- a. biotransformation
Feedback: Correct!
 - b. metabolite
Incorrect Feedback: A metabolite is what results after metabolism takes place.
 - c. distribution
Incorrect Feedback: Distribution concerns a different step in the drug cycle than that of metabolism.
 - d. parenteral
Incorrect Feedback: Parenteral is a route of administration and is not part of the drug cycle.
36. The intravesical route of administration is used to administer chemotherapy drugs into the _____.

- a. lungs
Incorrect Feedback: The intravesical route is not in the lungs.
- b. peritoneum
Incorrect Feedback: The intravesical route is not in the peritoneum.
- c. spinal cord
Incorrect Feedback: The intravesical route is not in the spinal cord.
- d. bladder
Feedback: Correct!
37. Only drugs given by _____ administration entirely bypass the step of absorption.
- a. endotracheal
Incorrect Feedback: Drugs given by an endotracheal tube must still be absorbed from the lungs into the blood.
- b. subcutaneous
Incorrect Feedback: Drugs given by the subcutaneous route must still be absorbed from the fatty tissue into the blood.
- c. oral
Incorrect Feedback: Drugs given by oral route must still be absorbed from the intestine into the blood.
- d. intravenous
Feedback: Correct!
38. As a drug leaves the blood and moves through all the body tissues, it comes in contact with _____.
- a. receptors
Feedback: Correct!
- b. the blood-brain barrier
Incorrect Feedback: The blood-brain barrier is not in all the body tissues.
- c. placenta
Incorrect Feedback: The placenta is only present in pregnant women.
- d. all of the above
Incorrect Feedback: Only one of these is true, not all of them.

True/False Questions

39. Chronotherapy coordinates the administration of a drug to the body's sense of need.
True Feedback: This statement is false.
False Feedback: Correct!
40. Before a drug can receive final approval by the FDA, the drug company must clearly state what routes of administration have been found to be safe and effective.
True Feedback: Correct!
False Feedback: This is a true statement.
41. A drug will be effective and therapeutic, regardless of the route by which it is administered.
True Feedback: This is a false statement.
False Feedback: Correct!
42. Some drugs are approved for use via more than one route and are manufactured in different drug forms appropriate for those different routes.
True Feedback: Correct!
False Feedback: This is a true statement.

43. The topical route of administration of drugs has a systemic effect on the body.
True Feedback: This is a false statement.
False Feedback: Correct!
44. The sublingual route of drug administration provides a faster therapeutic effect than the oral route.
True Feedback: Correct!
False Feedback: This is a true statement.
45. While the nasal administration of a drug is done topically, some nasal spray drugs act systemically throughout the body.
True Feedback: Correct!
False Feedback: This is a true statement.
46. The inhalation route of drug administration involves the inhaling of a drug that is in a gas, liquid, or powder form.
True Feedback: Correct!
False Feedback: This is a true statement.
47. Systemic absorption of a drug via the rectal route of administration is slow and often unpredictable.
True Feedback: Correct!
False Feedback: This is a true statement.
48. Although other organs are involved to a limited degree, the principal organ of drug excretion is the kidney.
True Feedback: Correct!
False Feedback: This is a true statement.
49. Parenteral administration theoretically includes all routes of administration other than the oral route.
True Feedback: Correct!
False Feedback: This is a true statement.
50. The therapeutic effect of a drug given intravenously takes awhile to be seen in the body as it has to travel through the systemic circulation.
True Feedback: This is a false statement.
False Feedback: Correct!
51. Only intravenous injections entirely bypass the step of absorption because the drug is administered directly into a vein and immediately enters the blood.
True Feedback: Correct!
False Feedback: This is a true statement.
52. The umbilical route is used to administer intravenous fluids and draw blood, but is not generally used to give drugs.
True Feedback: Correct!
False Feedback: This is a true statement.
53. Pregnant women are advised to only take drugs that are prescribed by their healthcare provider.
True Feedback: Correct!
False Feedback: This is a true statement.
54. Absorption involves the movement of a drug from the site of administration through the tissues and into the blood.
True Feedback: Correct!

- False Feedback: This is a true statement.
55. The blood-brain barrier is a protective barrier between the brain and the capillary walls of blood vessels around the brain, and no drug can penetrate this barrier.
True Feedback: This is a false statement.
False Feedback: Correct!
56. Each year, many infants are born addicted to drugs that their mothers took, or they are born with birth defects due to the action of drugs taken by their mothers.
True Feedback: Correct!
False Feedback: This is a true statement.
57. The names Broviac, Hickman, and Groshong are all associated with types of endotracheal tubes.
True Feedback: This is a false statement.
False Feedback: Correct!
58. The intra-articular route of administration is used to administer a chemotherapy drug directly into the area of a cancerous tumor.
True Feedback: This is a false statement.
False Feedback: Correct!
59. Following topical administration of a drug, the drug form does not need to undergo disintegration as it quickly dissolves in the tissue fluids of the skin.
True Feedback: Correct!
False Feedback: This is a true statement.
60. The presence or absence of food in the GI tract can reduce the absorption of a drug from 30 percent to as much as 80 percent.
True Feedback: Correct!
False Feedback: This is a true statement.

Short Answer Questions

61. Once a drug is administered, it goes through the four steps of the _____.
62. The _____ route of administration differs from the topical route in that the drug is applied to the skin, but the therapeutic effects are felt systemically, not just at the site of administration.
63. The oral route of drug administration is abbreviated ____ or ____.
64. _____ administration involves placing the drug under the tongue and allowing it to slowly dissolve.
65. _____ administration involves placing the drug in the pocket between the cheek and the lower teeth on one side of the mouth and allowing it to slowly dissolve.
66. _____ is the study of how drugs move through the body in the process of absorption, distribution, metabolism, and excretion.
67. As a drug enters the blood, some of the drug binds to circulating plasma proteins, such as _____.
68. The process of metabolism is also known as _____ because the drug is gradually transformed or metabolized from its original active form to a less active, or even inactive, form.
69. Some drugs are actually administered in an inactive form and remain inactive until they are metabolized. This type of drug is classified as a _____.
70. Give the medical abbreviation for each of these medical words or phrases.

Intramuscular _____

Project:

Intravenous _____

Subcutaneous _____

Right eye _____

Left ear _____

Both eyes _____

Matching Questions

71. Group A

Match the routes of administration in Column 1 with their definitions in Column 2.

Column 1

1. intradermal
2. intramuscular
3. intravenous
4. parenteral
5. subcutaneous

Column 2

- A. apart from the intestine
- B. below; underneath the skin
- C. within the muscle
- D. within the skin
- E. within the vein

72. Group B

Match the abbreviations in Column 1 to their definitions in Column 2.

Column 1

1. A.D.
2. A.S.
3. A.U.
4. O.D.
5. O.S.

Column 2

- A. both ears
- B. left ear
- C. left eye
- D. right ear
- E. right eye

Essay Questions

73. List three disadvantages associated with the oral route of drug administration.

74. Briefly explain the difference between water-soluble and fat-soluble drugs.

75. Some drugs are not absorbed at all following oral administration. However, nonabsorption of a drug via the oral route can be turned into a therapeutic advantage. Give an example and explain why.

76. Explain how to administer a liquid drug to an infant.

Chapter 5: Using Drugs Therapeutically**Multiple Choice Questions**

1. A drug that is able to unlock or activate a receptor and produce an effect is known as a/an _____.

- a. agonist

Feedback: Correct!

- b. antagonist

Incorrect Feedback: Antagonists (blockers) are drugs that can fit a receptor, but cannot actually unlock or activate the receptor.

- c. blocker

Incorrect Feedback: Antagonists (blockers) are drugs that can fit a receptor, but cannot actually unlock or activate the receptor.

- d. synergist

Incorrect Feedback: Synergism occurs when two drugs combine to produce an effect that is greater than the independent effect of each drug.

2. A drug's main action for which it was prescribed by the physician or other healthcare provider is known as a/an ____.
- adverse effect
Incorrect Feedback: The drug's main action is not known as an adverse effect.
 - drug reaction
Incorrect Feedback: The drug's main action is not known as a drug reaction.
 - side effect
Incorrect Feedback: The drug's main action is not known as a side effect.
 - therapeutic effect
Feedback: Correct!
3. A toxic effect of a drug results when ____.
- the drug company does not perform clinical trials for that drug
Incorrect Feedback: The drug company performs clinical trials to discover any toxic effects of a drug.
 - the physician decreases the drug dose in elderly patients
Incorrect Feedback: A toxic effect is not the result of decreasing the dose; it is the reason the dose was decreased.
 - the serum level of a drug is below the therapeutic level
Incorrect Feedback: A toxic effect does not result because the serum level is below the therapeutic level.
 - the serum level of a drug rises above the therapeutic level
Feedback: Correct!
4. Which of the following increases the likelihood of a drug-drug interaction?
- pharmacogenetics
Incorrect Feedback: Pharmacogenetics is the study of how the genetic makeup of different people affects their response to certain drugs, not drug-drug interactions.
 - polypharmacy
Feedback: Correct!
 - side effects
Incorrect Feedback: A drug's side effects do not increase the likelihood of a drug-drug interaction.
 - therapeutic effects
Incorrect Feedback: A drug's therapeutic effect does not increase the likelihood of a drug-drug interaction.
5. Adrenergic receptors include ____.
- alpha₁ and alpha₂ receptors
Incorrect Feedback: This is true, but it is not the only correct answer.
 - beta₁ and beta₂ receptors
Incorrect Feedback: This is true, but it is not the only correct answer.
 - alpha₁, alpha₂, beta₁, and beta₂ receptors
Feedback: Correct!
 - H₁ and H₂ receptors
Incorrect Feedback: Histamine receptors are not adrenergic receptors.

6. A list of the common side effects of a new drug is developed _____.
a. after a new drug is prescribed
Incorrect Feedback: The list of side effects is developed before a new drug is prescribed.
b. when a new drug is reported
Incorrect Feedback: This is nonspecific. Reports on drugs are given during clinical trials as well as after they are approved to be marketed.
c. after a drug is approved by the FDA
Incorrect Feedback: The list of side effects is developed before a new drug is approved by the FDA.
d. as a new drug is being tested
Feedback: Correct!
7. The presence of an antigen combined with an antibody stimulates the release of _____, which produces mild-to-severe allergic symptoms, depending on the amount released.
a. acetylcholine
Incorrect Feedback: Acetylcholine, a neurotransmitter of the parasympathetic division of the nervous system, activates cholinergic receptors. It is not involved in an allergic reaction.
b. epinephrine
Incorrect Feedback: Epinephrine, a neurotransmitter of the sympathetic division of the nervous system, activates adrenergic receptors. It is not involved in an allergic reaction.
c. histamine
Feedback: Correct!
d. norepinephrine
Incorrect Feedback: Norepinephrine, a neurotransmitter of the sympathetic division of the nervous system, activates adrenergic receptors. It is not involved in an allergic reaction.
8. The _____ measurement system for drug doses includes the minim, grain, scruple, and dram.
a. apothecary
Feedback: Correct!
b. drops
Incorrect Feedback: Drops are a drug measurement, but are not included with the minim, grain, scruple, and dram.
c. metric
Incorrect Feedback: The metric measurement system does not include the minim, grain, scruple, and dram.
d. units
Incorrect Feedback: Units are a drug measurement, but are not included with the minim, grain, scruple, and dram.
9. Which measurement system is officially known as the International System of Units (SI)?
a. apothecary
Incorrect Feedback: The apothecary system is not known by any other name.

- b. drops
Incorrect Feedback: The drops measurement is not known by any other name.
- c. metric
Feedback: Correct!
- d. units
Incorrect Feedback: The unit measurement is not known by any other name.
10. When a cube is formed that is 1 centimeter long on each side, it becomes a measurement of volume that is abbreviated as ____.
- a. cm
Incorrect Feedback: The abbreviation *cm* means *centimeter*, a measure of length, not volume.
- b. mg
Incorrect Feedback: The abbreviation *mg* means *milligram*, a measure of weight, not volume.
- c. kg
Incorrect Feedback: The abbreviation *kg* means *kilogram*, a measure of weight, not volume.
- d. cc
Feedback: Correct!
11. The abbreviation used to designate the measurement of drops is ____.
- a. cm
Incorrect Feedback: The abbreviation *cm* stands for *centimeter*, not *drops*.
- b. gtt
Feedback: Correct!
- c. mEq
Incorrect Feedback: The abbreviation *mEq* stands for *milliequivalent*, not *drops*.
- d. mL
Incorrect Feedback: The abbreviation *mL* stands for *milliliter*, not *drops*.
12. Receptors are specifically designed to interact with natural body chemicals. Which of the following is NOT one of those natural body chemicals?
- a. enzymes
Incorrect Feedback: Enzymes are natural body chemicals that interact with receptors.
- b. hormones
Incorrect Feedback: Hormones are natural body chemicals that interact with receptors.
- c. neurotransmitters
Incorrect Feedback: Neurotransmitters are natural body chemicals that interact with receptors.
- d. proteins
Feedback: Correct!
13. An antagonist drug ____.
- a. occupies but does not activate a receptor
Incorrect Feedback: This is true, but it is not the only correct answer.
- b. is similar to inserting the wrong key in a lock
Incorrect Feedback: This is true, but it is not the only correct answer.

- c. keeps other drugs from activating the receptor
Incorrect Feedback: This is true, but it is not the only correct answer.
- d. all of the above
Feedback: Correct!
14. A common side effect of narcotic drugs used to treat pain is _____.
a. depression
Incorrect Feedback: Narcotic drugs do not commonly cause depression.
b. nausea and vomiting
Incorrect Feedback: Narcotic drugs do not commonly cause nausea and vomiting.
c. loss of hair
Incorrect Feedback: Narcotic drugs do not commonly cause loss of hair.
d. constipation
Feedback: Correct!
15. A milliequivalent is _____ of an equivalent.
a. 1/100
Incorrect Feedback: The combining form *mill/i-* means *one thousand*.
b. 1/1,000
Feedback: Correct!
c. 1/100,000
Incorrect Feedback: The combining form *mill/i-* means *one thousand*.
d. 1/1,000,000,000
Incorrect Feedback: The combining form *mill/i-* means *one thousand*.
16. Which of the following is NOT one of the therapeutic effects of a drug?
a. curing a disease
Incorrect Feedback: Curing a disease is a therapeutic effect of drugs.
b. decreasing disease symptoms
Incorrect Feedback: Decreasing disease symptoms is a therapeutic effect of drugs.
c. diagnosing a disease or condition
Feedback: Correct!
d. preventing a disease
Incorrect Feedback: Preventing a disease is a desired therapeutic effect of drugs.
17. The systemic effect of a drug is felt _____.
a. where the physician intended it to be felt
Incorrect Feedback: A systemic effect is felt where the physician intended but also at other areas in the body.
b. throughout the body
Feedback: Correct!
c. only at the site of administration
Incorrect Feedback: A systemic effect is felt throughout the body.
d. only at the site of the target organ
Incorrect Feedback: A systemic effect is felt throughout the body.
18. Symptoms of an allergic reaction are based on the release of _____.
a. an antigen
Incorrect Feedback: An antigen is a foreign substance, but it is not released.
b. an antibody
Incorrect Feedback: An antibody is released by the immune system in response to

- an antigen, but it does not cause an allergic reaction itself.
- c. anaphylaxis
Incorrect Feedback: Anaphylaxis is a severe allergic reaction, but it is not released.
- d. histamine
Feedback: Correct!
19. When a drug has a narrow margin of safety between the correct dose and the toxic dose, that drug is said to have a low ____.
- a. first-pass effect
Incorrect Feedback: The first-pass effect occurs in the liver and was discussed in Chapter 4. It is not related to the margin of safety.
- b. drug idiosyncrasy
Incorrect Feedback: A drug idiosyncrasy is based on an individual's unique reaction and is not related to the margin of safety.
- c. therapeutic index
Feedback: Correct!
- d. level of adverse effects
Incorrect Feedback: A drug with a narrow margin of safety would have a high (not low) level of adverse effects.
20. A drug that can unlock or activate a receptor is known as a/an ____.
- a. metabolite
Incorrect Feedback: A metabolite, discussed in Chapter 4, does not unlock a receptor.
- b. antagonist
Incorrect Feedback: An antagonist drug does not unlock a receptor.
- c. neurotransmitter
Incorrect Feedback: A neurotransmitter is a natural body substance, not a drug.
- d. agonist
Feedback: Correct!
21. Which pair of drugs listed below, if taken together, is an example of the drug-drug interaction known as *synergism*?
- a. Alcohol and a tranquilizer drug
Incorrect Feedback: This is true, but it is not the only correct answer.
- b. Tylenol and codeine
Incorrect Feedback: This is true, but it is not the only correct answer.
- c. Potassium-wasting diuretic drug and potassium-sparing diuretic drug
Incorrect Feedback: This is true, but it is not the only correct answer.
- d. all of the above
22. Which system of drug measurement is used for nearly all drug doses?
- a. apothecary
Incorrect Feedback: The apothecary measurement system has been nearly discontinued.
- b. household
Incorrect Feedback: Household measurement is not a system and is used only by people in their homes.
- c. metric

- Feedback: Correct!
- d. ratio
Incorrect Feedback: Ratio measurement is not a system and is only used for measuring some drugs.
23. An idiosyncratic drug reaction is _____.
a. based on the patient's genetic makeup
Feedback: Correct!
b. a common side effect
Incorrect Feedback: An idiosyncratic drug reaction is not a common side effect.
c. based on an allergic reaction
Incorrect Feedback: An idiosyncratic drug reaction is not based on an allergic reaction.
d. all of the above
Incorrect Feedback: Not all of the above statements are correct.
24. The therapeutic effect of a drug is usually exerted _____.
a. as a side effect
Incorrect Feedback: The therapeutic effect is usually not a side effect.
b. on the target organ
Feedback: Correct!
c. as an adverse effect
Incorrect Feedback: The therapeutic effect of a drug is not an adverse effect.
d. by the release of histamine
Incorrect Feedback: An allergic reaction, not a therapeutic effect, releases histamine.
25. A drug-drug reaction in which the two drugs combine to produce an effect greater than the independent effect of each drug is called _____.
a. antagonism
Incorrect Feedback: Antagonism occurs when two drugs produce a lesser effect than either drug.
b. receptor
Incorrect Feedback: A receptor is a protein molecule on a cell membrane.
c. anaphylaxis
Incorrect Feedback: Anaphylaxis is a severe allergic reaction.
d. synergism
Feedback: Correct!
26. The drug that is measured in inches on a marked piece of applicator paper and used to treat angina pectoris is known as _____.
a. nitroglycerin ointment
Feedback: Correct!
b. topical corticosteroid
Incorrect Feedback: Topical corticosteroid drugs are not measured in inches.
c. insulin
Incorrect Feedback: Insulin drugs are measured in units, not inches.
d. Maalox
Incorrect Feedback: The antacid drug Maalox is measured in mL or cc, not inches.

27. All of the following are metric measurements EXCEPT ____.
- a. grain
Feedback: Correct!
 - b. milligram
Incorrect Feedback: Milligram is a metric measurement.
 - c. cubic centimeter
Incorrect Feedback: Milligram is a metric measurement.
 - d. milliliter
Incorrect Feedback: Milliliter is a metric measurement.
28. Which of the following statements is TRUE?
- a. Household measurement of a drug using a tablespoon is accurate.
Incorrect Feedback: Household measurement is an inaccurate measurement.
 - b. Insulin is measured in units.
Feedback: Correct!
 - c. Penicillin is measured in inches.
Incorrect Feedback: Only one drug is measured in inches and that is nitroglycerin ointment.
 - d. Electrolyte drugs are measured in ratios.
Incorrect Feedback: Doses of electrolyte drugs are measured in milliequivalents.
29. The abbreviation *h.s.* means ____.
- a. before meals
Incorrect Feedback: *Before meals* is abbreviated as *a.c.*
 - b. after meals
Incorrect Feedback: *After meals* is abbreviated as *p.c.*
 - c. at bedtime
Feedback: Correct!
 - d. nothing by mouth
Incorrect Feedback: *Nothing by mouth* is abbreviated as *n.p.o.* or *NPO*.
30. Nitroglycerin ointment is applied with specially marked paper that is measured in ____.
- a. millimeters
Incorrect Feedback: The specially marked paper used to measure nitroglycerin ointment is not measured in millimeters.
 - b. inches
Feedback: Correct!
 - c. milligrams
Incorrect Feedback: The specially marked paper used to measure nitroglycerin ointment is not measured in milligrams.
 - d. size of dose ordered
Incorrect Feedback: The size of the dose ordered is not specific enough.
31. Which type of drug listed below is NOT measured in units?
- a. insulin
Incorrect Feedback: All insulin drugs are measured in units.
 - b. antacid
Feedback: Correct!
 - c. penicillin

- Incorrect Feedback: Some penicillins are measured in units.
- d. vitamin
- Incorrect Feedback: Some vitamins are measured in units.
32. Pilot Mark Adams is flying a plane today, but his fall allergy symptoms are giving him a runny nose and red, watery eyes. What is the most important fact he should know?
- a. The antihistamine drug side effect of drowsiness can be used as a therapeutic effect to treat insomnia.
- Incorrect Feedback: This is true, but it is not the most important fact he needs to know.
- b. An allergic reaction involves an antibody and an antigen that combine and release histamine.
- Incorrect Feedback: This is true, but it is not the most important fact he needs to know.
- c. Antihistamine drugs cause a side effect of drowsiness that is undesirable in persons who must drive or operate machinery.
- Feedback: Correct!
- d. The perfect drug has a complete therapeutic effect and no side effects.
- Incorrect Feedback: This is true, but it is not the most important fact he needs to know.
33. The same drug given by a different route can exert either a local or a systemic effect. An example of this is _____.
- a. topical Benadryl that relieves skin itching and oral Benadryl that relieves skin itching, nasal stuffiness, and red, watery eyes
- Incorrect Feedback: This is true, but it is not the only correct answer.
- b. an antihistamine drug that, when taken with grapefruit juice, can cause the adverse effect of heart arrhythmias
- Incorrect Feedback: This is true, but it does not relate to the question of local and systemic effects.
- c. topical lidocaine that is gargled for anesthesia in the mouth and intravenous lidocaine that is used to treat cardiac arrhythmias
- Incorrect Feedback: This is true, but it is not the only correct answer.
- d. a and c
- Feedback: Correct!
34. The therapeutic effect of an antagonist or blocker drug is to occupy the receptor site and block _____ from activating the receptor.
- a. hormones
- Incorrect Feedback: This is true, but it is not the only correct answer.
- b. neurotransmitters
- Incorrect Feedback: This is true, but it is not the only correct answer.
- c. other drugs
- Incorrect Feedback: This is true, but it is not the only correct answer.
- d. all of the above
- Feedback: Correct!
35. Which statement about cholinergic receptors is FALSE?
- a. The adjective *cholinergic* is derived from the word *acetylcholine*.
- Incorrect Feedback: This is a true statement.

- b. Cholinergic receptors are also known as *adrenergic receptors*.
Feedback: Correct!
- c. Cholinergic receptors are part of the parasympathetic division of the nervous system.
Incorrect Feedback: This is a true statement.
- d. Cholinergic receptors respond to the neurotransmitter acetylcholine.
Incorrect Feedback: This is a true statement.
36. Side effects can be _____.
a. mild and temporary
Incorrect Feedback: This is true, but it is not the only correct answer.
b. moderate and annoying
Incorrect Feedback: This is true, but it is not the only correct answer.
c. severe enough that the drug must be stopped
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
37. Toxic effects are more common in elderly patients whose _____ are less able to metabolize and excrete a drug.
a. lungs and stomach
Incorrect feedback: The lungs and stomach do not metabolize and excrete a drug.
b. liver and kidneys
Feedback: Correct!
c. stomach and intestines
Incorrect feedback: The stomach and intestines do not metabolize and excrete a drug.
d. brain and central nervous system
Incorrect feedback: The brain and central nervous system do not metabolize and excrete a drug.
38. When toxic effects occur, the physician can respond by _____.
a. decreasing the dose of the drug
Incorrect Feedback: This is true, but it is not the only correct answer.
b. lengthening the time between doses
Incorrect Feedback: This is true, but it is not the only correct answer.
c. discontinuing the drug
Incorrect Feedback: This is true, but it is not the only correct answer.
d. all of the above
Feedback: Correct!
39. The antibiotic drugs gentamicin and kanamycin are known to exert toxic effects on the ear. This is known as _____.
a. nephrotoxicity
Incorrect Feedback: Nephrotoxicity is toxicity of the kidney.
b. liver toxicity
Incorrect feedback: Gentamicin and kanamycin are not known to cause liver toxicity.
c. ototoxicity
Feedback: Correct!

- d. brain toxicity
Incorrect feedback: Gentamicin and kanamycin are not known to cause brain toxicity.
40. What common problems of the elderly lead to missed drug doses and overdoses?
- a. vision problems
Incorrect Feedback: This is true, but it is not the only correct answer.
- b. memory problems
Incorrect Feedback: This is true, but it is not the only correct answer.
- c. taking multiple drugs on different schedules
Incorrect Feedback: This is true, but it is not the only correct answer.
- d. all of the above
Feedback: Correct!
41. When the antibiotic drug tetracycline is taken with an antacid, these two drugs _____.
- a. form an insoluble complex that prevents a therapeutic effect
Feedback: Correct!
- b. cause a side effect of severe diarrhea
Incorrect Feedback: These two drugs do not cause severe diarrhea.
- c. produce an allergic reaction with each other
Incorrect Feedback: These two drugs do not produce an allergic reaction.
- d. show synergy and an increased therapeutic effect of each drug
Incorrect Feedback: These drugs create an insoluble complex in the stomach that prevents either drug from exerting a therapeutic effect. This is not an example of synergy.
42. Housewife Shannon McGee is taking an MAO inhibitor drug for depression. She knows she should not eat any foods that are high in tyramine to avoid getting hypertension and a headache. She should avoid all of these foods EXCEPT _____.
- a. chocolate
Incorrect Feedback: Chocolate should be avoided by patients taking an MAO inhibitor drug.
- b. cheese
Incorrect Feedback: Cheese should be avoided by patients taking an MAO inhibitor drug.
- c. meat
Feedback: Correct!
- d. Alcohol
Incorrect Feedback: Alcohol should be avoided by patients taking an MAO inhibitor drug.
43. Which of the following drugs is NOT one of the drugs that is still measured in grains by the apothecary system?
- a. phenobarbital
Incorrect Feedback: This is true, but it is not the only correct answer.
- b. desiccated thyroid
Incorrect Feedback: This is true, but it is not the only correct answer.
- c. iron
Incorrect Feedback: This is true, but it is not the only correct answer.

- d. all of the above
Feedback: Correct!
44. A drug error can occur because one of the “five rights of drug administration” is not followed, such as _____.
- a. the nurse does not check the patient’s identification band
Feedback: Correct!
- b. the pharmacy does not carry that particular drug
Incorrect Feedback: This is not one of the five rights of drug administration.
- c. the patient has been transferred to surgery
Incorrect Feedback: This is not one of the five rights of drug administration.
- d. all of the above
Incorrect Feedback: Not all of these answers are included in the five rights of drug administration.
45. A drug dose for a pediatric patient is calculated on the basis of _____.
- a. age
Incorrect Feedback: A pediatric drug dose is not calculated based on age.
- b. height
Incorrect Feedback: A pediatric drug dose is not calculated based on height.
- c. weight
Feedback: Correct!
- d. total body surface area
Incorrect Feedback: Chemotherapy drugs, not pediatric drugs, are calculated on the basis of total body surface area.

True/False Questions

46. Adrenergic receptors respond to the neurotransmitter acetylcholine from the parasympathetic division of the nervous system.
True Feedback: This is a false statement.
False Feedback: Correct!
47. All drugs have a target organ where they exert their effect.
True Feedback: This is a false statement.
False Feedback: Correct!
48. An adverse effect is a type of severe side effect.
True Feedback: Correct!
False Feedback: This is a true statement.
49. An allergic reaction is a type of side effect caused by the release of histamine.
True Feedback: Correct!
False Feedback: This is a true statement.
50. A patient may take several doses of a drug without having an allergic reaction, but later develop an allergic reaction to that drug.
True Feedback: Correct!
False Feedback: This is a true statement.
51. One drug can act as a master key to unlock several different receptors in different organs.
True Feedback: Correct!
False Feedback: This is a true statement.
52. Most drugs are associated with at least one or two side effects (sometimes more) that

are frequently observed after administration.

True Feedback: Correct!

False Feedback: This is a true statement.

53. Once a drug is approved by the FDA and on the market, its advertisements, informational literature, prescribing information, and package inserts for the drug must list the side effects.

True Feedback: Correct!

False Feedback: This is a true statement.

54. Once a drug has been approved by the FDA, if there are reports of severe adverse effects, the drug cannot be taken off the market; but the drug company will be required to add those adverse effects to their list of side effects and warnings.

True Feedback: This is a false statement.

False Feedback: Correct!

55. Physicians, pharmacists, and the DEA can report adverse drug effects to the FDA.

True Feedback: This is a false statement.

False Feedback: Correct!

56. Before FDA approval, the drug company must show that a drug does not produce toxic effects when administered in therapeutic doses.

True Feedback: Correct!

False Feedback: This is a true statement.

57. Once a patient is sensitized to a particular drug, only a full dose of that drug will trigger an allergic reaction.

True Feedback: This is a false statement.

False Feedback: Correct!

58. A patient who is allergic to one drug can safely take other drugs belonging to that drug group.

True Feedback: This is a false statement.

False Feedback: Correct!

59. Certain ethnic groups, such as those of Asian, Jewish, and African descent, have well-studied idiosyncratic reactions to certain drugs.

True Feedback: Correct!

False Feedback: This is a true statement.

60. When administered simultaneously, some drugs interact with each other in a particular way that either accentuates or diminishes the action of each.

True Feedback: Correct!

False Feedback: This is a true statement.

61. Drugs given by weight are measured in kilograms, milligrams, and micrograms.

True Feedback: This is a false statement.

False Feedback: Correct!

62. The standard adult dose is appropriate for all adults, including elderly, very thin, or very obese patients.

True Feedback: This is a false statement.

False Feedback: Correct!

63. The way to optimize the therapeutic effect of a drug and minimize the occurrence of adverse or toxic effects is to take the drug exactly as prescribed.

True Feedback: Correct!

- False Feedback: This is a true statement.
64. An allergic reaction to a drug will only occur if the blood level of the drug is at a toxic level.
True Feedback: This is a false statement.
False Feedback: Correct!
65. Drugs given intravenously exert a systemic effect.
True Feedback: Correct!
False Feedback: This is a true statement.
66. Accutane has been associated with the adverse effect of suicide.
True Feedback: Correct!
False Feedback: This is a true statement.
67. Severe side effects are also known as adverse effects.
True Feedback: Correct!
False Feedback: This is a true statement.
68. When antibiotic drugs are prescribed, their therapeutic effect is directed toward a target organ.
True Feedback: This is a false statement.
False Feedback: Correct!
69. One milliliter (mL) and one cubic centimeter (cc) can be used interchangeably as measurements of drug doses.
True Feedback: Correct!
False Feedback: This is a true statement.
70. Drugs given subcutaneously exert either a local or a systemic effect, depending on the type of drug.
True Feedback: Correct!
False Feedback: This is a true statement.
71. All drugs approved by the FDA are entirely safe and without potential side effects and risks.
True Feedback: This is a false statement.
False Feedback: Correct!
72. The adverse effects of a particular drug are more common than the side effects of that drug.
True Feedback: This is a false statement.
False Feedback: Correct!

Short Answer Questions

73. Drug effects are initiated through _____, special protein molecules located on the cell membranes of every cell.
74. Some drugs appear to fit a certain receptor but cannot actually unlock or activate the receptor to produce an effect. These drugs are known as _____ or blockers.
75. The most severe symptoms of an allergic reaction are collectively known as _____, which can lead to a type of shock.
76. A drug _____ is a type of drug reaction that is not a side effect and is not based on an allergic reaction. It is an individual's unique reaction to a drug and it differs from side effects commonly associated with that drug.
77. _____ occurs when two drugs combine to produce an effect that is greater than the independent effect of each drug.

79. _____ occurs when two drugs combine to produce an effect that is less than the intended effect for either drug.

79. The therapeutic effect of a drug can be directed toward the specific area of the body that has the disease—toward a _____ (e.g. the heart, in patients with congestive heart failure).

80. When a drug with a low _____ (a narrow margin of safety between the therapeutic dose and the toxic dose) is administered, it is not uncommon to see toxic symptoms.

81. An allergy is a reaction that occurs when the body's immune system identifies a foreign substance such as drug (known as an _____) and initiates an antibody response against it.

82. _____ is the study of how the genetic makeup of different people affects their response to certain drugs.

Matching Questions

83. Group A

Match the measurement systems with the drug example.

Column 1

1. drops

2. inches

3. milliequivalent

4. percentage

5. units

Column 2

A. electrolyte solution

B. eye and ear medications

C. insulin

D. nitroglycerin ointment

E. steroid ointments

84. Group B

Match the abbreviations in Column 1 with their definitions in Column 2.

Column 1

1. a.c.

2. h.s.

3. p.r.n.

4. q.d.

5. t.i.d.

Column 2

A. as needed

B. at bedtime

C. before meals

D. every day

E. three times a day

Essay Questions

85. Briefly explain the difference between local and systemic effects of drugs, and then give an example of a drug route that produces a local effect and a drug route that produces a systemic effect.

86. Many drugs (such as antihistamine drugs) have both a therapeutic effect and side effects. Side effects can either be undesirable or beneficial. Describe how antihistamine drugs can have a side effect that is both undesirable and beneficial.

87. Some side effects of a drug are common. For the three body systems or drug categories listed here, give one common side effect associated with each: gastrointestinal system, central nervous system, chemotherapy drugs.

Chapter 6: The Prescription

Multiple Choice Questions

1. A _____ prescription is handwritten by the physician on a single preprinted sheet.

a. computerized

Incorrect Feedback: A computerized prescription is done on the computer, not

- handwritten.
- b. electronic
Incorrect Feedback: Electronic prescriptions are generated by the computer.
- c. verbal
Incorrect Feedback: Verbal prescriptions are not handwritten by the provider on a single sheet of paper, but are given over the telephone.
- d. written
Feedback: Correct!
2. Which type of prescription is typed into the medical office's computer system, a copy printed out, and then signed by the physician and given to the patient?
- a. computerized
Feedback: Correct!
- b. electronic
Incorrect Feedback: Electronic prescriptions are generated by a computer, but are not signed by the physician; an electronic signature is automatically imprinted on the bottom of the prescription.
- c. verbal
Incorrect Feedback: Verbal prescriptions are not typed into a medical office's computer system, but are provided over the telephone or in person.
- d. written
Incorrect Feedback: Written prescriptions are not typed into the medical office's computer system, but are handwritten.
3. Which type of prescription is generated by a computer and not signed by the physician?
- a. computerized
Incorrect Feedback: Computerized prescriptions are printed out and signed by the physician.
- b. electronic
Feedback: Correct!
- c. verbal
Incorrect Feedback: Verbal prescriptions are not generated by a computer.
- d. written
Incorrect Feedback: Written prescriptions are signed by the physician and are not generated by a computer.
4. A pharmacist can fill a prescription without having it on a prescription form and without a physician's signature for which of the following types of drugs?
- a. drugs that are not controlled substances
Feedback: Correct!
- b. Schedule I drugs
Incorrect Feedback: Schedule I drugs are controlled substances and require a written and signed prescription.
- c. Schedule II drugs
Incorrect Feedback: Schedule II drugs are controlled substances and require a written and signed prescription.
- d. Schedule III drugs
Incorrect Feedback: Schedule III drugs are controlled substances and

require a written and signed prescription.

5. What is the name given to a group of specific orders that are preprinted on a hospital's physician's order sheet? They often pertain to a protocol of treatment related to a specific disease or surgical procedure.

a. automatic stop orders

Incorrect Feedback: Automatic stop orders originate from the hospital pharmacy and are not preprinted on the physician's order sheet.

b. medication orders

Incorrect Feedback: Medication orders are individually written on the physician's order sheet, not preprinted as a group.

c. standing orders

Feedback: Correct!

d. verbal orders

Incorrect Feedback: Verbal orders are orders given verbally, not preprinted as group on the physician's order sheet.

6. What type of order does not originate with the physician, but with the hospital pharmacy?

a. automatic stop orders

Feedback: Correct!

b. medication orders

Incorrect Feedback: Medication orders originate with the physician.

c. standing orders

Incorrect Feedback: Standing orders originate with the physician.

d. verbal orders

Incorrect Feedback: Verbal orders originate with the physician.

7. Prescriptions for most drugs (except schedule drugs) are valid for how long from the date on the prescription form?

a. seven days

Incorrect Feedback: This is not correct.

b. three months

Incorrect Feedback: This is not correct.

c. six months

Incorrect Feedback: This is not correct.

d. one year

Feedback: Correct!

8. Prescriptions for Schedule III through Schedule V drugs are valid for how long from the date on the prescription form?

a. seven days

Incorrect Feedback: This is not correct.

b. three months

Incorrect Feedback: This is not correct.

c. six months

Feedback: Correct!

d. one year

Incorrect Feedback: This is not correct.

9. Prescriptions for Schedule II drugs are valid for how long from the date on the

prescription form?

- a. seven days

Feedback: Correct!

- b. three months

Incorrect Feedback: This is not correct.

- c. six months

Incorrect Feedback: This is not correct.

- d. one year

Incorrect Feedback: This is not correct.

10. Which of the following is NOT used when writing a drug name on a prescription?

- a. abbreviation

Incorrect Feedback: While abbreviations of drug names should be avoided because they can be misread, they can be used.

- b. chemical name

Feedback: Correct!

- c. generic name

Incorrect Feedback: The generic name is often used when writing the drug's name on a prescription.

- d. trade name

Incorrect Feedback: The trade name is often used when writing the drug's name on a prescription.

11. When a physician writes the directions for use on a prescription, those directions describe three things. Which of the following is NOT one of the things included in the directions for use?

- a. the amount of the dose

Incorrect Feedback: The amount of the dose is included in the directions, such as take two tablets before bedtime.

- b. the drug form

Feedback: Correct!

- c. the frequency of the dose

Incorrect Feedback: The frequency of the dose is included in the directions, such as take one tablet three times a day.

- d. the route of administration

Incorrect Feedback: The route of administration is included in the direction, such as take one tablet by mouth.

12. All drug orders in the hospital carry an automatic stop order that is activated whenever a patient _____.

- a. is transferred to another nursing unit

Incorrect Feedback: This is true, but it is not the only correct statement.

- b. goes to surgery

Incorrect Feedback: This is true, but it is not the only correct answer.

- c. is discharged to home

Incorrect Feedback: This is true, but it is not the only correct statement.

- d. all of the above

Feedback: Correct!

13. All of the following are identifying information about the prescriber that is preprinted

on a prescription form EXCEPT _____.

a. the physician's office phone number

Incorrect Feedback: This is preprinted on the prescription form.

b. the physician's DEA number

Feedback: Correct!

c. the physician's name

Incorrect Feedback: This is preprinted on the prescription form.

d. the physician's office address

Incorrect Feedback: This is preprinted on the prescription form.

14. Nonprescription (over-the-counter) drugs _____.

a. do not require a prescription and can be purchased by any adult

Feedback: Correct!

b. do not require a prescription and can be purchased by anyone

Incorrect Feedback: While nonprescription drugs do not require a prescription, they can only be purchased by an adult.

c. require a prescription and can be purchased by any adult

Incorrect Feedback: Nonprescription drugs do not require a prescription.

d. require a prescription and can be purchased by anyone

Incorrect Feedback: Nonprescription drugs do not require a prescription and can only be purchased by an adult.

15. Several ethical concerns have been raised about online pharmacies that offer "prescription drugs without a prescription." Which of the following statements is NOT one of the ethical concerns about these types of online pharmacies.

a. These pharmacies do not provide patient education and counseling.

Feedback: Correct!

b. These pharmacies are an easy source of drugs for addicts.

Incorrect Feedback: This is one of the ethical concerns.

c. Some of the drugs could come from foreign countries with poor quality control.

Incorrect Feedback: This is one of the ethical concerns.

d. The patient is not actually examined by a physician before being given a prescription.

Incorrect Feedback: This is one of the ethical concerns.

16. Which type of medication order is carried out (or dispensed) before a physician's signature is obtained?

a. electronic order

Incorrect Feedback: An electronic order is digitally signed with the physician's name at the time it is created.

b. standing order

Incorrect Feedback: A standing order is signed by the physician prior to being carried out or dispensed.

c. verbal order

Feedback: Correct!

d. written order

Incorrect Feedback: A written order is signed by the physician before it is carried out or dispensed.

17. A legitimate Internet pharmacy _____.

a. advertises that it will provide prescription drugs without a prescription

Incorrect Feedback: An unscrupulous Internet pharmacy, not a legitimate one, will provide prescription drugs without a prescription.

b. can be an easy source of drugs for an addict

Incorrect Feedback: An unscrupulous Internet pharmacy, not a legitimate one, is an easy source of drugs for an addict.

c. calls the doctor to verify the validity of a prescription before filling it

Feedback: Correct!

d. all of the above

Incorrect Feedback: A legitimate pharmacy does not do all of these things.

18. A prescription can be written by all of the following EXCEPT _____.

a. a physician or dentist

Incorrect Feedback: A physician or dentist can write a prescription.

b. a podiatrist or optometrist

Incorrect Feedback: A podiatrist or optometrist can write a prescription.

c. a nurse

Feedback: Correct!

d. a physician's assistant or nurse practitioner

Incorrect Feedback: A physician's assistant or nurse practitioner can write a prescription.

19. A prescription form is used to convey to _____ a written record of a physician's order of a drug for a patient.

a. another physician

Incorrect feedback: the physician does not write a prescription to another physician.

b. the pharmacist

Feedback: correct!

c. the patient

Incorrect feedback: the physician does not write a prescription to the patient, but for the patient.

- d. none of the above
Incorrect feedback: one of these answers is correct.
20. In a prescription or medication order, after the drug name and the drug strength, the next thing that would be the written is the _____.
- a. unit of measurement
Feedback: Correct!
- b. physician's signature
Incorrect Feedback: the physician's signature is at the end of the prescription form.
- c. patient's age and weight
Incorrect Feedback: if included, the patient's age and weight are at the beginning of a prescription form.
- d. the unique Rx number
Incorrect Feedback: the unique Rx number is assigned by the pharmacist, not written in the prescription or medication order.
21. Official prescription forms used to prescribe schedule II drugs include all of the following security features except _____.
- a. an imprinted seal
Incorrect Feedback: official prescription forms for schedule drugs do contain an imprinted seal.
- b. the physician's DEA number
Feedback: Correct!
- c. a control number
Incorrect Feedback: official prescription forms for schedule drugs do contain a control number.
- d. thermochromatic ink
Incorrect Feedback: official prescription forms for schedule drugs do use thermochromatic ink.
22. If a handwritten prescription was photocopied, and the word "VOID" became visible on the photocopy, this would tell you that the prescription was _____.
- a. not valid
Incorrect Feedback: This is not true statement.
- b. for an over-the-counter drug
Incorrect Feedback: Physicians do not write prescriptions for over-the-counter drugs as they can be purchased without a prescription.
- c. expired and would not be filled by the pharmacist
Incorrect Feedback: This is not a true statement.
- d. on an official prescription form used for a Schedule II drugs
Feedback: Correct!
23. The paper physician's order sheet is _____.
- a. kept on file in the physician's office
Incorrect Feedback: The physician's order sheet is not kept in the physician's office.
- b. kept in a computer
Incorrect Feedback: The physician's order sheet is a paper record, not kept in a computer

- c. part of a preprinted prescription pad
Incorrect Feedback: A prescription form, not a physician's order sheet, is part of a prescription pad.
- d. located at the front of the patient's hospital medical record.
Feedback: Correct!
24. To obtain a refill of a prescription drug, the patient must _____.
- a. rewrite the prescription
Incorrect Feedback: The patient cannot write or rewrite a prescription.
- b. provide the pharmacy with the unique Rx number
Feedback: Correct!
- c. seek information and counseling from the pharmacist
Incorrect Feedback: Pharmacists provide information and counseling, but this is not a prerequisite for refilling a prescription.
- d. request a childproof safety cap
Incorrect Feedback: The pharmacist may offer a childproof cap, but it is not a prerequisite for obtaining a refill of the prescription.
25. According to the National Association of Chain Drug Stores, many seniors are _____ because of expensive drug costs.
- a. relying on their primary care physician to give them drug samples
Incorrect Feedback: This is true, but it is not the only correct statement.
- b. cutting down on the frequency of drug doses
Incorrect Feedback: This is true, but it is not the only correct statement.
- c. doing without their drugs
Incorrect Feedback: This is true, but it is not the only correct statement.
- d. all of the above
Feedback: Correct!

True/False Questions

26. Prescribing schedule drugs is restricted under the Controlled Substances Act of 1970.
True Feedback: Correct!
False Feedback: This is a true statement.
27. The abbreviation *Sig.* in a prescription refers to the signature line where the physician signs.
True Feedback: This is a false statement.
False Feedback: Correct!
28. Some unscrupulous Internet pharmacies obtain their drugs from foreign countries where the quality and purity of the drugs may be compromised.
True Feedback: Correct!
False Feedback: This is a true statement.
29. All states have passed laws that say that a physician must write a prescription that is legible and can be read.
True Feedback: This is a false statement.
False Feedback: Correct!
30. The hospital's pharmacy committee decides how many days any medication order for a scheduled drug will continue to be filled until the pharmacy automatically stops it.
True Feedback: Correct!
False Feedback: This statement is true.

31. The use of generic rather than trade name drugs can result in considerable savings to consumers.
True Feedback: Correct!
False Feedback: This is a true statement.
32. Prescriptions for controlled substances require the physician's DEA number.
True Feedback: Correct!
False Feedback: This is a true statement.
33. Handwritten prescriptions can be written in ink or pencil, as long as they are legible.
True Feedback: This is a false statement.
False Feedback: Correct!
34. Only the drug's trade name can be used when writing a prescription.
True Feedback: This is a false statement.
False Feedback: Correct!
35. Childproof caps were introduced in 1984 and are important for keeping children from mistaking colorful prescription drug capsules and tablets for candy.
True Feedback: Correct!
False Feedback: This is a true statement.
36. When a hospital patient is discharged home, the attending physician in the hospital provides individual prescriptions that the patient can take to a local pharmacy to be filled.
True Feedback: Correct!
False Feedback: This is a true statement.
37. OTC drugs must have a written prescription from a physician or dentist.
True Feedback: This is a false statement.
False Feedback: Correct!
38. No physician is allowed to write a medication order for a hospital patient unless he/she is already an approved member of the hospital's medical staff.
True Feedback: Correct!
False Feedback: This is a true statement.
39. For the sake of convenience and to speed up office visits, the physician should pre-sign some blank prescription forms ahead of time.
True Feedback: This is a false statement.
False Feedback: Correct!
40. On a medication order for a patient in the hospital, the physician must write both the date and the time.
True Feedback: Correct!
False Feedback: This is a true statement.
41. Most prescription forms come with a large preprinted *Rx* just to the left of the area where the prescription itself will be handwritten.
True Feedback: Correct!
False Feedback: This is a true statement.
left of the area where the prescription itself will be handwritten.
42. Writing an abbreviation of a drug name on a prescription form or physician's order sheet is common and saves time and avoids confusion.
True Feedback: This is a false statement.
False Feedback: Correct!
43. One advantage of a computerized or an electronic prescription is that the patient does

not have to hand-carry it to the pharmacy because it can be faxed to the pharmacist.

True Feedback: Correct!

False Feedback: This is a true statement.

44. The DEA number consists of nine characters, the first two of which are A, B, or C for physicians and M for other practitioners.

True Feedback: Correct!

False Feedback: This is a true statement.

45. Prescriptions written for prescription drugs require that the physician include his/her DEA number.

True Feedback: This is a false statement.

False Feedback: Correct!

46. If a prescription is filled by a pharmacy technician, it must then be checked for accuracy by a pharmacist.

True Feedback: Correct!

False Feedback: This is a true statement.

47. Because each hospital has its own formulary of which drugs it has in stock, the hospital pharmacist will dispense the generic equivalent of a drug unless the physician specifically requests the trade name.

True Feedback: Correct!

False Feedback: This is a true statement.

48. A prescription is a medicolegal document. It contains medical information and it can be used as evidence in a court of law.

True Feedback: Correct!

False Feedback: This is a true statement.

49. In the hospital, medication orders are handwritten on a large preprinted form known as a prescription pad or prescription record.

True Feedback: This is a false statement.

False Feedback: Correct!

50. The physician's name (and/or the name of the medical group), office address, and phone number are preprinted on both prescription forms in the office and on the physician's order sheets in the hospital.

True Feedback: This is a false statement.

False Feedback: Correct!

51. The patient's first and last name are handwritten on a physician's order sheet and preprinted on a prescription form.

True Feedback: This is a false statement.

False Feedback: Correct!

52. The abbreviation Rx is printed on both the prescription form and on the physician's

order sheet.

True Feedback: This is a false statement.

False Feedback: Correct!

53. Even though a prescription is submitted by the patient to the pharmacy to be filled, the prescription itself remains the property of the prescribing physician.

True Feedback: This is a false statement.

False Feedback: Correct!

54. Once a pharmacist receives a prescription, he/she assigns a unique prescription number (Rx #) that is printed on the label of the prescription bottle and is unique to that prescription.

True Feedback: Correct!

False Feedback: This is a true statement.

55. Verbal orders for a patient in the hospital can be given over the phone to a licensed nurse. Since the order is verbal, the nurse does not need to write it on the physician's order sheet.

True Feedback: This is a false statement.

False Feedback: Correct!

56. In addition to standing orders when a patient enters the hospital, a physician would also write more specific medication orders for drugs to treat the patient's other current medical needs.

True Feedback: Correct!

False Feedback: This is a true statement.

57. In the past, prescriptions were actually recipes listing several ingredients to be crushed and mixed by the pharmacist before dispensing.

True Feedback: Correct!

False Feedback: This is a true statement.

58. The physician does NOT need to provide his/her DEA number when writing a medication order for a controlled substance if the patient is in the hospital.

True Feedback: Correct!

False Feedback: This is a true statement.

59. In some large facilities, pharmacy technicians are the ones who actually verify the

drug and dose prescribed and then fill the prescription.

True Feedback: Correct!

False Feedback: This is a true statement.

60. Legitimate Internet pharmacies have a seal on the home page of their Website that says “Verified Internet Pharmacy Provider Site.”

True Feedback: Correct!

False Feedback: This is a true statement.

Short Answer Questions

61. A _____ is a written, computerized, electronic, or verbal order from a physician (or other qualified healthcare provider) to a pharmacist, giving instructions as to how to dispense a drug to a specific patient who has been diagnosed with a condition that requires drug therapy.

62. A _____ is the written record of a physician’s order to the pharmacist to dispense a drug to a patient who is in the hospital or other healthcare facility.

63. When a licensed nurse receives this type of order, they write it in the chart and mark it as a V.O. The abbreviation *V.O.* stands for _____.

64. The etiology of the word _____ comes from a Latin word meaning *a written order*.

65. The abbreviation *Rx* stands for the Latin word *recipere*, meaning _____.

66. The abbreviation *Sig.* stands for the Latin word *signetur*, meaning _____.

67. The abbreviation *NR* on a prescription form stands for _____.

68. For schedule drugs, the physician’s assigned federal DEA number must be included for the prescription to be valid. The abbreviation *DEA* stands for _____.

69. Verbal orders are also known as _____.

70. _____ contain common orders that are the same for any patient who has that specific disease or is scheduled for that surgical procedure.

71. A healthcare professional who fills prescriptions and provides personalized services by answering questions and helping customers understand what drugs they are taking is known as a _____.

72. Define these abbreviations.

DAW _____

DEA _____

NR _____

V.O. _____

Matching Questions

Group A

73. Match the type of information in Column 1 with the place where that information appears in Column 2.

Column 1

1. date of the order
2. DEA number
3. drug form
4. preprinted identifying information about the prescriber
5. quantity to be dispensed
6. physician's signature
7. preprinted identifying information about the patient
8. abbreviation Rx

Column 2

- A. appears only on a prescription form
- B. appears only on a physician's order sheet
- C. appears on both a prescription and on a physician's order form

Essay Questions

74. A patient's age and weight are sometimes (but not always) included on a prescription form. Explain why this information might be useful to include.

75. When a physician orders a drug's strength, there is limitation as to what can be written in the order. Describe what that limitation is, giving an example to justify your explanation.

76. There are several different ways that a physician can specify that he/wants a trade name drug rather than a generic equivalent to be dispensed. Give examples of two ways in which this can be done.

77. Why is the abbreviation Rx NOT preprinted on physician order sheets?

78. Describe four ways to prevent the theft of prescription pads from the medical office.

79. Explain why many physicians prefer to prescribe a trade name drug for certain drugs rather than the generic equivalent, even though the generic equivalent costs less for the patient.