

Understanding Pharmacology for Health Professionals, 6e (Turley)
Chapter 1 Introduction to Pharmacology

1.1 Multiple Choice Questions

1) Pharmacology is the study of _____.

- A) how drugs are dispensed
- B) pills and how to give them
- C) drugs and their interactions with living organisms
- D) plants, herbs, minerals, and animals

Answer: C

Explanation:

- A) The dispensing of drugs is only a small part of the field of pharmacology.
- B) Pharmacology does this, but includes much more.
- C) This is the correct definition.
- D) Some drugs come from these sources, but it is not the focus of pharmacology.

2) The word *pharmacology* comes from _____.

- A) the Dutch word *droog*
- B) the Greek word *pharmakon*
- C) the Greek word *prophylaxis*
- D) the Latin word *medicina*

Answer: B

Explanation:

- A) The Dutch word *droog* is where we get the word *drug*.
- B) Correct. *Pharmacology* comes from the Greek word *pharmakon*.
- C) The Greek word *prophylaxis* means *to keep guard before*.
- D) The Latin word *medicina* is where we get the word *medicine* or *medication*.

3) Drugs have three medical uses. Which of the following is NOT one of those uses?

- A) Drugs can provide evidence that a disease is present.
- B) Drugs can treat symptoms, signs, and diseases.
- C) Drugs can prevent disease.
- D) Drugs can cause symptoms, signs, and diseases.

Answer: D

Explanation:

- A) Diagnose: This is one of the three medical uses for drugs.
- B) Treat: This is one of the three medical uses for drugs.
- C) Prevent: This is one of the three medical uses for drugs.
- D) Correct. This is true, but it is not one of the medical uses for a drug.

4) The use of drugs during x-ray procedures and other medical tests to show evidence of a disease is known as _____.

- A) a preventive use
- B) a diagnostic use
- C) treating symptoms and signs of a disease
- D) None of the above

Answer: B

Explanation:

- A) The preventive use of drugs does not occur during a radiologic procedure.
- B) Correct. A diagnostic use does show evidence of a disease.
- C) Drugs used during radiologic procedures are not treating a disease.
- D) 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) an animal
- B) a mineral
- C) a plant
- D) a trace element

Answer: C

Explanation:

- A) Foxglove is not an animal.
- B) Foxglove is not a mineral.
- C) Correct. Foxglove is a plant.
- D) Foxglove is not a trace element.

6) The drug Premarin, a female hormone replacement used to treat the symptoms of menopause, is derived from _____.

- A) pregnant mares' urine
- B) margarine and oils
- C) the lanolin from processed sheep's wool
- D) powdered rose hips

Answer: A

Explanation:

- A) Correct. The drug name Premarin is taken from the phrase *pregnant mares' urine*.
- B) Premarin is not derived from margarine and oils.
- C) Premarin is not derived from lanolin from processed sheep's wool.
- D) Premarin is not derived from powdered rose hips.

7) Which of the following has NEVER been the source of a drug used to treat diabetes mellitus?

- A) ground-up beef pancreas
- B) the saliva of Gila monsters
- C) ground-up pork pancreas
- D) lanolin from sheep

Answer: D

Explanation:

- A) Ground-up animal pancreas was a source of insulin for treating diabetes mellitus the past.
- B) The saliva of the Gila monster is a source of the antidiabetic drug Byetta.
- C) Ground-up pig pancreas was a source of insulin for treating diabetes mellitus in the past.
- D) Correct. Lanolin is a topical drug; it is not used to treat diabetes mellitus.

8) In the past, without the use of computers, designing a new drug was _____.

- A) a quick process, done by just repositioning molecules
- B) a slow process of trial and error
- C) not done, because drug companies didn't know about molecular structures
- D) easy to do, by using models of wood and wire

Answer: B

Explanation:

- A) Without the use of computers, designing a new drug was not a quick process.
- B) Correct. Without computers, drug design was a slow process in the past.
- C) Even before computers, drug companies knew about molecular structures.
- D) Manipulating wood and wire models was slow.

9) Which drug was NOT created using molecular manipulation?

- A) the antibiotic drug ampicillin
- B) the antianxiety drug diazepam (Valium)
- C) human insulin (Humulin)
- D) the antihistamine fexofenadine (Allegra)

Answer: C

Explanation:

- A) Ampicillin was created from penicillin by molecular manipulation.
- B) Diazepam (Valium) was created from chlordiazepoxide by molecular manipulation.
- C) Correct. Human insulin (Humulin) was created by recombinant DNA technology, not molecular manipulation.
- D) Fexofenadine (Allegra) was created from another antihistamine drug by molecular manipulation.

10) Information from the human genome has led to the development of the subspecialty area of _____ in research and drug design.

- A) pharmacogenetics
- B) pharmacogenomics
- C) pharmacology
- D) A and B

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) Pharmacology existed before the human genome was discovered.
- D) Correct.

11) Prescription drugs are defined as those drugs that _____.

- A) meet clinical trial requirements and are approved by the FDA
- B) are stronger than what is allowed for over-the-counter use
- C) are not safe to use except under professional medical supervision
- D) contain addictive properties that prevent over-the-counter use

Answer: C

Explanation:

- A) This is not a correct description of a prescription drug.
- B) This is not a correct description of a prescription drug.
- C) Correct. This is the definition of a prescription drug.
- D) This is not a correct description of a prescription drug.

12) Which of the following statements concerning schedule drugs is TRUE?

- A) Schedule I drugs can be included—in small doses—in over-the-counter drugs.
- B) Schedule I drugs have the highest potential for abuse and addiction, while Schedule V drugs have the lowest.
- C) Schedule V drugs are not available under any circumstances, even with a prescription.
- D) Schedule V drugs have the highest potential for abuse and addiction, while Schedule I drugs have the lowest.

Answer: B

Explanation:

- A) Schedule I drugs have no currently accepted medical use.
- B) Correct. This is true.
- C) It is Schedule I drugs, not Schedule V drugs, that are not available under any circumstances. Schedule V drugs are available.
- D) 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
- B) make drug companies responsible for drug substitution and mislabeling that caused deaths
- C) require drug companies to provide an accurate list of the drug's ingredients
- D) speed up the approval process of new drugs

Answer: A

Explanation:

- A) Correct. This is a true statement.
- B) This occurred in the 1912 amendment to The Food and Drugs Act of 1906, not the Orphan Drug Act.
- C) This occurred in the 1912 amendment to The Food and Drugs Act of 1906, not the Orphan Drug Act.
- D) This occurred in The Food and Drug Administration (FDA) Modernization Act, not the Orphan Drug Act.

14) When analgesic drugs are used to control arthritis pain, this is an example of the _____ use of drugs.

- A) therapeutic
- B) pharmacologic
- C) preventive
- D) diagnostic

Answer: A

Explanation:

- A) Correct. The therapeutic use is to treat the symptom of the disease.
- B) The pharmacologic use of drugs is too broad a concept and would include every drug and every use.
- C) Analgesic drugs are not used to prevent pain.
- D) Analgesic drugs are not used to diagnose pain.

15) One drug used to treat Alzheimer's disease was originally derived from _____.

- A) yams
- B) periwinkle
- C) daffodils
- D) autumn crocus

Answer: C

Explanation:

- A) Some estrogen hormone replacement therapy drugs are derived from yams.
- B) The drug vincristine to treat cancer is derived from periwinkle.
- C) Correct. Galantamine (Razadyne) from daffodils is used to treat Alzheimer disease.
- D) Colchicine to treat gout is derived from the autumn crocus.

16) Original plant sources of some commonly used drugs include all of the following EXCEPT _____.

- A) oak tree
- B) rose hips
- C) hot pepper plant
- D) opium poppy

Answer: A

Explanation:

- A) Correct. No drugs have been developed from the oak tree.
- B) Rose hips are an original plant source for vitamin C.
- C) The hot pepper plant is an original plant source of capsaicin for topical pain relief.
- D) The opium poppy is an original plant source for morphine.

17) From the moment of its discovery or creation, every drug has a _____ name that is assigned by the International Union of Pure and Applied Chemistry (IUPAC).

- A) brand
- B) chemical
- C) generic
- D) trade

Answer: B

Explanation:

- A) The brand name, or trade name, is created by the drug company, not IUPAC.
- B) Correct.
- C) The drug company, working together with the United States Adopted Names (USAN) Council, not the IUPAC, determines a drug's generic name.
- D) The trade name, or brand name, is created by the drug company, not IUPAC.

18) Which of the following drug names would have a trademark TM after it?

- A) chemical name
- B) generic name
- C) molecular structure
- D) trade name

Answer: D

Explanation:

- A) A drug's chemical name is assigned by the IUPAC, not trademarked.
- B) The generic name is not trademarked.
- C) A drug's molecular structure, is a structure, not a name.
- D) Correct. The trade name from the drug company would be trademarked.

19) Which of the following is NOT the same as the proprietary name of a drug?

- A) generic name
- B) brand name
- C) trade name
- D) None of the above

Answer: A

Explanation:

- A) Correct.
- B) The brand name is another name for the proprietary name.
- C) The trade name is another name for the proprietary name.
- D) One of the answers is correct.

20) Drugs can be created or designed in all of the following ways, EXCEPT _____.

- A) from substances in nature
- B) using dietary supplements
- C) by computer
- D) by recombinant DNA technology

Answer: B

Explanation:

- A) Drugs are created from substances in nature.
- B) Correct. Dietary supplements are already a type of drug.
- C) Drugs are created by computer molecular manipulation.
- D) Drugs are created by recombinant DNA technology.

21) The drug digoxin (Lanoxin) that is used today to treat congestive heart failure was derived from the _____.

- A) foxglove plant
- B) belladonna plant
- C) opium poppy flower
- D) French lilac flower

Answer: A

Explanation:

- A) Correct.
- B) This drug was not derived from the belladonna plant.
- C) This drug was not derived from the opium poppy flower.
- D) This drug was not derived from the French lilac flower.

22) Recombinant DNA technology involves _____.

- A) using enzymes to cut apart segments of DNA gene splicing
- B) cloning a large supply of DNA segments
- C) transferring the segments from the host to the recipient
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

23) The United States Adopted Names (USAN) Council _____.

- A) gives the final approval for marketing of a drug
- B) works with the drug company to determine the generic name for a drug
- C) selects the generic and trade names for all drugs
- D) names all new chemical and molecular substances

Answer: B

Explanation:

- A) The FDA, not the USAN, gives final approval for marketing of a drug.
- B) Correct.
- C) The USAN does not select the trade names for drugs.
- D) The International Union of Pure and Applied Chemistry (IUPAC), not the USAN, assigns the chemical name.

24) The government agency responsible for regulating the manufacturing and dispensing of controlled substances is called the _____.

- A) Drug Enforcement Administration (DEA)
- B) Food and Drug Administration (FDA)
- C) United States Pharmacopeia
- D) Schedule Drug Agency

Answer: A

Explanation:

- A) Correct.
- B) The Food and Drug Administration (FDA) reviews drugs during clinical trials and evaluates their safety.
- C) The *United States Pharmacopeia* is a book that lists all the drugs that are approved.
- D) There is no such governmental agency.

25) Which of the following statements is FALSE?

- A) A chemical name only has one generic drug name associated with it.
- B) The trade name is specifically designed to be easy for patients to remember.
- C) Drug companies follow standard spelling rules for their trade name drugs.
- D) There is often a common suffix for generic drugs that belong to the same drug category.

Answer: C

Explanation:

- A) This statement is true.
- B) This statement is true.
- C) Correct. Trade name drugs can be difficult to spell because drug companies are not required to follow any standard spellings.
- D) This statement is true.

26) A Schedule divides drugs by their _____.

- A) cost to the patient
- B) potential for physical dependence
- C) potential for psychological dependence
- D) B and C

Answer: D

Explanation:

- A) A Schedule is not related to the cost of a drug.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

27) An example of a Schedule I drug is _____.

- A) aspirin
- B) Ambien
- C) LSD
- D) morphine

Answer: C

Explanation:

- A) Aspirin is not a Schedule drug. It is an over-the-counter drug with no potential for addiction.
- B) Ambien is a Schedule IV drug, not a Schedule I drug.
- C) Correct. LSD is a Schedule I drug.
- D) Morphine is a Schedule II drug.

28) The Controlled Substances Act created _____ categories of drugs based on their potential for addiction.

- A) seven
- B) three
- C) five
- D) ten

Answer: C

Explanation:

- A) There are not seven categories of controlled substances.
- B) There are not three categories of controlled substances.
- C) Correct. There are five categories of controlled substances.
- D) There are not ten categories of controlled substances.

29) Which name accurately describes the molecular structure of a drug and distinguishes it from all other drugs?

- A) brand name
- B) chemical name
- C) generic name
- D) trade name

Answer: B

Explanation:

- A) The brand name does not to describe molecular structure.
- B) Correct.
- C) The generic name does not describe molecular structure.
- D) The trade name does not describe molecular structure.

30) The first recombinant DNA technology drug to be approved by the FDA was _____.

- A) an over-the-counter drug
- B) a vaccine to prevent influenza
- C) a drug from pregnant mares' urine
- D) human insulin

Answer: D

Explanation:

- A) Recombinant DNA technology is not used to produce over-the-counter drugs.
- B) The influenza vaccine was not the first recombinant DNA drug.
- C) The drug from pregnant mares' urine, a natural source (not recombinant DNA technology), is Premarin.
- D) Correct. Human insulin (Humulin) was the first FDA-approved recombinant DNA drug.

31) The belladonna plant was the original source of the drugs _____ that are still used today.

- A) atropine and digoxin
- B) aspirin and morphine
- C) atropine and scopolamine
- D) colchicine and morphine

Answer: C

Explanation:

- A) Atropine is from the belladonna plant, but digoxin is from the foxglove plant.
- B) Aspirin is from the willow tree, and morphine is from the opium poppy.
- C) Correct. Atropine and scopolamine are from the belladonna plant.
- D) Colchicine is from the autumn crocus, and morphine is from the opium poppy plant.

32) Rose hips from the rose plant are still used today as a natural source of _____.

- A) morphine
- B) vitamin C
- C) insulin
- D) All of the above

Answer: B

Explanation:

- A) Morphine is from the opium poppy plant.
- B) Correct. Vitamin C dietary supplement is from rose hips.
- C) Insulin is not derived from rose hips.
- D) Rose hips are the natural source for only one of these drugs.

33) All of the following are minerals that are used in drugs or as dietary supplements EXCEPT _____.

- A) iron
- B) calcium
- C) gold
- D) cinchona bark

Answer: D

Explanation:

- A) Iron is a mineral that is used as a dietary supplement.
- B) Calcium is a mineral that is used as a dietary supplement.
- C) Gold is used in a drug for rheumatoid arthritis, not a dietary supplement.
- D) Correct. This is a plant, not a mineral.

34) 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 first take the over-the-counter drug Dramamine. This is an example of the _____ use of a drug.

- A) preventive
- B) therapeutic
- C) diagnostic
- D) All of the above

Answer: A

Explanation:

- A) Correct. Taking a drug to prevent motion sickness is preventative.
- B) A therapeutic drug is taken once the motion sickness has already occurred.
- C) A diagnostic drug helps diagnose an illness, not prevent it.
- D) Dramamine only falls under one of these uses of drugs, not all of them.

35) In the year 2000, the Human Genome Project _____.

- A) identified the double-helix structure of DNA
- B) mapped all 3.2 billion parts of the human genome
- C) became another name for gene replacement therapy
- D) determined what the names of new DNA drugs should be

Answer: B

Explanation:

- A) The double-helix structure was discovered by Watson and Crick in 1962.
- B) Correct.
- C) The Human Genome Project is not another name for gene replacement therapy.
- D) The Human Genome Project is not related to the naming of drugs.

36) The majority of drugs are used to control, improve, or cure symptoms, signs of disease. This is known as a _____ use.

- A) preventive
- B) diagnostic
- C) prescription
- D) therapeutic

Answer: D

Explanation:

- A) Drugs for preventive use are taken before symptoms and diseases occur.
- B) Drugs for diagnostic use do not control, improve, or cure symptoms or diseases.
- C) Prescription drugs are not the only kinds of drugs used to cure symptoms or diseases.
- D) Correct.

37) A prescription drug can be obtained with a _____.

- A) written prescription from a physician or physician's assistant
- B) verbal order from a dentist
- C) written prescription or verbal order from a healthcare professional whose license permits this
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

38) Which of these ancient peoples practiced pharmacology?

- A) Egyptians
- B) Chinese
- C) Native Americans of North America and Aztec Indians of Mexico
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

39) If you had lived during the 1700s and 1800s, it would not have been unusual for you to _____.

- A) have taken a drug that contained opium, heroin, or cocaine
- B) be addicted without knowing it after taking a drug for a common disease
- C) take a drug whose addictive ingredients were not listed on the label
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

40) The chemical name of a drug _____.

- A) is too lengthy and complicated for everyday use by healthcare professionals
- B) is only used by researchers and consumers
- C) is the same as the generic name of the drug
- D) All of the above

Answer: A

Explanation:

- A) This is true.
- B) The chemical name is only used by drug companies and researchers, never by consumers.
- C) The chemical name is not the same as the generic name of a drug.
- D) Only one of the answers is correct.

41) Which of the following are examples of drugs discovered in the environment?

- A) capsaicin from the hot pepper plant
- B) an anticancer drug from yew tree needles
- C) cephalosporin antibiotic drugs from a fungus in a sewer outlet
- D) All were discovered in the environment.

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

42) A dextrorotary drug _____.

- A) is an isomer
- B) has a molecular structure rotated to the right
- C) includes the drug dextromethorphan for coughing
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

43) 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
- B) a patient can easily diagnose and monitor his/her own condition
- C) there is enough public pressure after a drug tragedy
- D) All of the above

Answer: B

Explanation:

- A) 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) Correct. The patient must be able to easily diagnose and self-monitor self when taking an OTC drug.
- C) This is not one of the reasons for reclassifying a prescription drug as an OTC drug.
- D) One of these is a reason for reclassifying, but not all of them.

44) 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 OTC drug will be lower
- B) the patient will have better access to quick treatment
- C) there will be a greater chance for drug-drug interactions
- D) the patient will need fewer doctor visits for prescription refills

Answer: C

Explanation:

- A) This is an advantage for OTC drugs.
- B) This is an advantage for OTC drugs.
- C) Correct. This is a disadvantage, not an advantage, of OTC drugs.
- D) This is an advantage for OTC drugs.

45) The Controlled Substances Act of 1970 did all of the following, EXCEPT _____.

- A) regulate controlled substances
- B) introduce the word *narcotic*
- C) divide potentially addictive drugs into categories
- D) regulate Schedule drugs

Answer: B

Explanation:

- A) The Controlled Substances Act did do this.
- B) Correct. The word *narcotic* was introduced by The Harrison Narcotics Act of 1914.
- C) The Controlled Substances Act did do this.
- D) The Controlled Substances Act did do this.

46) When designing a drug, a computer can do all of the following EXCEPT _____.

- A) display the molecular structure of any drug in its database
- B) identify chemicals that would probably not be successful in treating a particular disease
- C) rotate any molecule in three dimensions
- D) transfer DNA segments to a host

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct. This is only done with recombinant DNA technology.

47) Pharmacology includes all of the following interrelated topics, EXCEPT _____.

- A) philosophy and religion
- B) chemistry and genetics
- C) patient education
- D) legislation and technology

Answer: A

Explanation:

- A) Correct. Pharmacology does not include these topics.
- B) Pharmacology includes these topics.
- C) Pharmacology includes this topic.
- D) Pharmacology includes these topics.

48) The process of combining of substances from plants, animals, and minerals to form a single drug is known as _____.

- A) molecular pharmacology
- B) personalized medicine
- C) compounding
- D) human genome

Answer: C

Explanation:

- A) This does not describe molecular pharmacology
- B) This does not describe personalized medicine.
- C) Correct. This does describe the process of compounding.
- D) This does not describe the human genome.

49) Which of the following is true about drugs in the Middle Ages?

- A) Some of the drug ingredients were based on medical lore and superstition.
- B) Some of the drug ingredients were therapeutic.
- C) Some of the drug ingredients were worthless or even harmful.
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

50) The mineral gold is used in a drug to treat _____.

- A) diabetes mellitus
- B) rheumatoid arthritis
- C) mineral deficiency
- D) baldness

Answer: B

Explanation:

- A) Gold is not used to treat diabetes mellitus.
- B) Correct. The gold compound drug auranofin (Ridaura) is used to treat rheumatoid arthritis.
- C) Gold is not used to treat a mineral deficiency.
- D) Gold is not used to treat baldness.

51) Which substances have been created as drugs through recombinant DNA technology?

- A) clotting factors
- B) erythropoietin
- C) human growth factor
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

52) Slight molecular changes to a drug can significantly affect all of the following EXCEPT its _____.

- A) absorption and metabolism
- B) half-life
- C) therapeutic effect and side effects
- D) cost

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct. Molecular changes do not correlate to a drug's cost.

53) The drug exenatide (Byetta), used to treat diabetes mellitus, is derived from _____.

- A) coal mining
- B) the saliva of the Gila monster
- C) the venom of the cone snail
- D) recombinant DNA technology

Answer: B

Explanation:

- A) Topical coal tar drugs for psoriasis are derived from coal mining.
- B) Correct.
- C) Prilast, not Byetta, is derived from venom of the cone snail.
- D) Byetta was not created with recombinant DNA technology.

54) A designer drug _____.

- A) has a chemical structure similar to a Schedule I or II drug
- B) is known as an *analog*
- C) is created to avoid prosecution under existing drug laws.
- D) All of the above

Answer: D

Explanation:

- A) This is true, but it is not the only correct answer.
- B) This is true, but it is not the only correct answer.
- C) This is true, but it is not the only correct answer.
- D) Correct.

55) The Federal Analogue Act of 1986 made it easier to prosecute those who produced and sold _____.

- A) prescription drugs
- B) designer drugs
- C) over-the-counter drugs
- D) Schedule drugs

Answer: B

Explanation:

- A) This Act does not deal with prescription drugs.
- B) Correct. The Federal Analogue Act targets designer drugs.
- C) This Act does not deal with over-the-counter drugs.
- D) This Act does not deal with Schedule drugs.

56) A comprehensive list of all drugs and their ingredients and uses was known as _____.

- A) a recipe
- B) pharmacology
- C) a pharmacopoeia
- D) an apothecary

Answer: C

Explanation:

- A) A recipe is a list of ingredients, but for just one drug.
- B) Pharmacology is a study area, not a list.
- C) Correct.
- D) An apothecary is an older word for a drug store.

57) The federal government classifies marijuana as an illegal Schedule _____ drug.

- A) I
- B) II
- C) III
- D) IV

Answer: A

Explanation:

- A) Correct. Marijuana is a Schedule I drug.
- B) Schedule II drugs are not illegal.
- C) Schedule III drugs are not illegal.
- D) Schedule IV drugs are not illegal.

58) Pharmacies today do compounding for all of the following reasons EXCEPT _____.

- A) to flavor a medication
- B) to create a new generic drug
- C) to remove ingredients that cause an allergy to a patient
- D) to change the form of a drug for a patient who cannot swallow tablets.

Answer: B

Explanation:

- A) This is a reason to do compounding.
- B) Correct. A pharmacist cannot create a new generic drug.
- C) This is a reason to do compounding.
- D) This is a reason to do compounding.

59) Once the FDA gives final approval for a generic drug, the drug company creates a _____.

- A) chemical name
- B) generic name
- C) molecular name
- D) trade name

Answer: D

Explanation:

- A) The chemical name is assigned by the IUPAC, not the drug company.
- B) 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) A drug does not have a molecular name, but uses a chemical name instead to describe the drug's molecular structure.
- D) Correct.

60) The trade name of the drug Lithobid was selected to indicate _____.

- A) the name of the drug company
- B) how often the drug is to be given
- C) the amount of the active ingredient
- D) the disease the drug is used to treat

Answer: B

Explanation:

- A) The name Lithobid does not indicate the name of the drug company.
- B) Correct. Lithobid indicates how often the drug is to be taken (b.i.d., twice a day).
- C) The name Lithobid does not indicate the amount of the active ingredient.
- D) The name Lithobid does not indicate the disease the drug is used to treat.

61) All of the following are reasons why the trade names of some drugs are spelled in a certain way. Identify the reason that is NOT true.

- A) The spelling of the trade name indicates the duration of time before the drug expires.
- B) The spelling of the trade name indicates the drug's source.
- C) The spelling of the trade name indicates the disease or symptoms being treated.
- D) The spelling of the trade name indicates how often the drug should be taken.

Answer: A

Explanation:

- A) Correct. The spelling does NOT indicate the duration of time before expiration.
- B) The spelling of some trade names DO indicate the drug's source.
- C) The spelling of some trade names DO indicate the disease process the drug is used to treat.
- D) The spelling of some trade names DO indicate how often the drug should be taken.

62) The first monoclonal antibody drug was developed in _____.

- A) 1896
- B) 1936
- C) 1986
- D) 2021

Answer: C

Explanation:

- A) The first monoclonal antibody drug was developed later than this.
- B) The first monoclonal antibody drug was developed later than this.
- C) Correct.
- D) The first monoclonal antibody drug was developed before this.

63) All of the following are reasons why the trade names of some drugs are spelled in 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.
- B) The spelling of the trade name indicates the drug's source.
- C) The spelling of the trade name indicates the disease process being treated.
- D) The spelling of the trade name indicates how often the drug should be taken.

Answer: A

Explanation:

- A) Correct. The drug patent is NOT reflected in the drug name spelling.
- B) The spelling of some trade names DO indicate the drug's source.
- C) The spelling of some trade names DO indicate the disease process the drug is used to treat.
- D) The spelling of some trade names DO indicate how often the drug should be taken.

64) The trade name of the drug Lithobid was selected to indicate _____.

- A) the name of the drug company
- B) how often the drug is to be given
- C) the amount of the active ingredient
- D) the disease the drug is used to treat

Answer: B

Explanation:

- A) The name Lithobid does not indicate the name of the drug company
- B) Correct.
- C) The name Lithobid does not indicate the amount of the active ingredient
- D) The name Lithobid does not indicate the disease the drug is used to treat.

65) The trade names of these drugs all indicate a double-strength dose, a controlled-delivery dose, or a long-acting dose of a drug, EXCEPT _____.

- A) Bactrim DS
- B) Cortizone-5
- C) Cardizem, CD
- D) Ritalin LA

Answer: B

Explanation:

- A) This trade name indicates a double-strength drug.
- B) Correct. This shows the drug's strength, but it is not double strength.
- C) This trade name indicates a controlled-release drug.
- D) This trade name indicates a long-acting drug.

66) All of these trade names indicate what part of the body or what disease or symptoms the drug is used to treat, EXCEPT _____.

- A) Sudafed
- B) Pepcid
- C) Boniva
- D) Lipitor

Answer: A

Explanation:

- A) Correct. Sudafed just keeps some recognizable parts generic drug name.
- B) Pepcid indicates that the drug is used to treat peptic ulcers.
- C) Boniva indicates that the drug strengthens the bone.
- D) Lipitor indicates that the drug is used to decrease blood lipids.

67) Over-the-counter drugs _____.

- A) do not require a prescription and can be purchased by any adult
- B) do not require a prescription and can be purchased by anyone
- C) require a prescription and can be purchased by any adult
- D) require a prescription and can be purchased by anyone

Answer: A

Explanation:

A) Correct.

B) While nonprescription drugs do not require a prescription, they can only be purchased by an adult.

C) Nonprescription drugs do not require a prescription.

D) Nonprescription drugs do not require a prescription.

68) All of the following are types of pharmacies, EXCEPT _____.

- A) ambulatory
- B) compounding
- C) satellite
- D) formulary

Answer: D

Explanation:

A) This is a type of pharmacy.

B) This is a type of pharmacy.

C) This is a type of pharmacy.

D) Correct. This is a list of approved drugs, not a type of pharmacy.

69) Medication therapy management _____.

- A) helps a patient understand the drugs they are being treated with
- B) is a service provided by the pharmacist
- C) prevents medication errors and improve patient compliance
- D) All of the above

Answer: D

Explanation:

A) This is true, but it is not the only correct answer.

B) This is true, but it is not the only correct answer.

C) This is true, but it is not the only correct answer.

D) Correct.

1.2 True/False Questions

1) The discipline of pharmacology impacts a student's chosen career as well as his/her personal life as a consumer.

Answer: TRUE

2) In common usage, the word *drug* can be used interchangeably with the word *medicine*.

Answer: TRUE

3) The Egyptians applied moldy bread to abrasions, a practice that we now know actually had some therapeutic basis.

Answer: TRUE

4) The opium poppy was used to create morphine to treat severe pain.

Answer: TRUE

5) An isomer is a drug molecule with the same number and types of atoms as another drug, but has those atoms arranged in a different way.

Answer: TRUE

6) Multivitamin supplements contain minerals such as calcium, iron, gold, copper, and zinc.

Answer: FALSE

Explanation: Gold is only found in the drug auranofin (Ridaura), which is used to treat rheumatoid arthritis.

7) The isolation of potassium from water in 1800s marked the beginning of modern drug therapy using chemically pure ingredients.

Answer: FALSE

Explanation: It was the isolation of morphine from opium, not potassium from water.

8) In the 1800s, pharmacists had to prepare drug, such as syrup bases and hand-rolled suppositories.

Answer: TRUE

9) Drugs in the 1700s and 1800s often listed an addictive ingredient on its label, and consumers knew to avoid this.

Answer: FALSE

Explanation: Addictive ingredients were not mentioned on drug labels and many became addicted.

10) The Dietary Supplements and Health and Education Act of 1994 made the FDA responsible for regulating herbal products and dietary supplements and liable for claims against those products.

Answer: FALSE

Explanation: The Act allowed the FDA to set up guidelines, but not regulate herbal products and dietary supplements. The Act made drug companies liable for claims against their herbal products and dietary supplements.

11) The FDA regulates prescription drugs, but not over-the-counter (OTC) drugs.

Answer: FALSE

Explanation: The FDA regulates both prescription and OTC drugs.

12) Prescription drugs can only be obtained with a written order or a verbal order from a healthcare provider whose license permits this.

Answer: TRUE

13) An OTC drug is defined as a drug that can be purchased without a prescription but requires the consumer to have a laboratory test first.

Answer: FALSE

Explanation: An OTC drug is defined as one 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.

14) The FDA regulates prescription drugs, but the DEA regulates over-the-counter drugs.

Answer: FALSE

Explanation: The FDA regulates both prescription and OTC drugs.

15) The FDA only allows physicians to prescribe FDA-approved drugs to patients.

Answer: FALSE

Explanation: The FDA allows licensed healthcare providers, such as a physician, physician's assistants, nurse practitioner, or dentist, to prescribe investigational drugs.

16) In order to prevent childhood diseases, the American Academy of Pediatrics issues an annual immunization schedule listing the immunizations to be given to children before they enroll in school.

Answer: TRUE

17) A drug or a medicine can be thought of as any nonfood chemical substance that affects the mind or the body.

Answer: TRUE

18) The word *drug* can mean a medicine, but it can also refer to illegal or street drugs.

Answer: TRUE

19) The 1994 Dietary Supplement Health and Education Act gives the FDA the authority to regulate dietary supplements as drugs.

Answer: FALSE

Explanation: The FDA does not have this authority.

20) A drug's label and package must show the drug's assigned Schedule.

Answer: TRUE

21) As they did in the early 1900s, pharmacists today daily prepare the drugs they dispense, and they also provide patient information and education.

Answer: FALSE

Explanation: The pharmacist usually does not prepare drugs any more.

22) The marijuana plant is sold as the prescription drug Marinol.

Answer: FALSE

Explanation: Marinol is a synthetic drug whose action is similar to marijuana.

23) The FDA has standards for the spelling of trade name drug, and drug companies must follow those standards.

Answer: FALSE

Explanation: There are no standards for the spelling of trade name drugs.

24) Traditional Chinese herbal remedies have not been found to be effective or therapeutic according to Western standards of medicine.

Answer: FALSE

Explanation: It has been found that 45 percent of traditional Chinese herbal remedies are therapeutic according to Western medicine standards.

25) We know from reading the newspaper that cocaine is available illegally as a street drug, but topical cocaine is also a Schedule II drug with legitimate medical uses.

Answer: TRUE

26) The manufacturing, storage, dispensing, and disposal of controlled substances are strictly regulated by both federal and state laws.

Answer: TRUE

27) Pharmacology is one of the oldest branches of medicine.

Answer: TRUE

28) A Schedule drug is also known as a *controlled substance*.

Answer: TRUE

29) Many drugs still in use today were originally taken from plant, animal, or mineral sources many years ago.

Answer: TRUE

30) The Orphan Drug Act facilitates the development of new drugs to treat patients who are poor and needy and cannot afford medical care.

Answer: FALSE

Explanation: This Act facilitates the development of new drugs to treat rare diseases that affect fewer than 200,000 people.

31) By law, the over-the-counter version of a prescription drug can only contain one half the strength of the prescription drug.

Answer: FALSE

Explanation: The OTC drug is usually at a lower dose or strength but not specifically one half.

32) The *United States Pharmacopoeia* was first published in 1820.

Answer: TRUE

33) Gene replacement therapy creates a person's missing or nonfunctioning gene.

Answer: TRUE

34) Pharmacies in each state and the pharmacists working in them must be licensed by that state.
Answer: TRUE

35) A contraceptive drug is used to diagnose pregnancy.
Answer: FALSE
Explanation: A contraceptive drug is used to prevent pregnancy.

36) Mold is the original plant source for penicillin, the first antibiotic drug.
Answer: TRUE

37) The first law that regulated drugs with the potential for abuse and dependence was The Harrison Narcotics Act of 1914.
Answer: TRUE

38) The suffix *-olol* is common to generic beta-blocker drugs.
Answer: TRUE

39) A satellite pharmacy is one that is located on the International Space Station.
Answer: FALSE
Explanation: Large hospitals have a central pharmacy but also smaller satellite pharmacies in different locations throughout the hospital.

40) A hospital pharmacy can dispenses drugs to anyone who has a prescription.
Answer: FALSE
Explanation: A hospital pharmacy only dispenses drugs to patients who are being treated in the hospital.

41) Some pharmacies today still do compounding of drugs.
Answer: TRUE

42) Long-term care facilities have their own in-house pharmacy on site.
Answer: FALSE
Explanation: Skilled nursing facilities and long-term care facilities do not have in-house pharmacies; instead, a pharmacy supply company delivers their drugs, which are kept at each nurses' station or patient care unit.

43) The National Association of Boards of Pharmacy (NABP) accredits online pharmacies who fill prescriptions over the Internet.
Answer: TRUE

44) Robots and automated dispensing systems are used in hospitals to fill prescriptions.
Answer: TRUE

45) A pharmacy technician is another name for a pharmacist with technical training.
Answer: FALSE
Explanation: A pharmacy technician is an assistant who performs pharmacy-related tasks under the direction of a pharmacist.

46) The suffix *-mab* is common to every generic monoclonal antibody drug.

Answer: TRUE

47) A chemical name usually has two or more generic drug names associated with it.

Answer: FALSE

Explanation: A chemical name only has one generic name related to it.

48) It is illegal to give a controlled substance to any person without that person's knowledge.

Answer: TRUE

49) Medical marijuana is helpful in treating patients with HIV/AIDS and nausea and vomiting from chemotherapy drugs.

Answer: TRUE

50) The National Association of Boards of Pharmacy accredits online pharmacies.

Answer: TRUE

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

Answer: TRUE

52) An outpatient pharmacy is also known as drug store.

Answer: FALSE

Explanation: An outpatient pharmacy is also known as an ambulatory pharmacy.

53) Each pharmacy is required to be licensed by the state where it is located.

Answer: TRUE

1.3 Short Answer Questions

1) 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.

Answer: drug

2) The administration of a preventive drug is known as _____, from a Greek word meaning "to keep guard before."

Answer: prophylaxis

3) The symbol _____, which comes from the Latin word *recipere*, meaning "to take or receive," indicates a prescription for a drug (originally one whose recipe contained one or more ingredients).

Answer: Rx

4) Controlled substances are divided into five categories or _____ based on their potential for physical and psychological dependence.

Answer: Schedules

5) The word _____ refers to a drug that is administered for its value as a preventive, diagnostic, or therapeutic agent.

Answer: medicine

6) The abbreviation FDA stands for the _____.

Answer: Food and Drug Administration

7) A drug's generic name always begins with a/an _____ letter.

Answer: lowercase

8) The topical drug _____ was the first prescription drug approved for use as an over-the-counter drug.

Answer: hydrocortisone

9) Define these abbreviations.

DEA _____

DS _____

FDA _____

LA _____

OTC _____

rDNA _____

Answer: Drug Enforcement Administration; double strength; Food and Drug Administration; long acting; over-the-counter; recombinant DNA.

10) Today's modern pharmacy began originally as a storehouse for dried plants and herbs that was known then as a/an _____.

Answer: apothecary

11) We can remember what the drug auranofin (Ridaura) contains, because the "au" in both drug names stands for the chemical symbol Au and for the mineral _____.

Answer: gold

12) _____ is the knowledge of how genetic makeup of different people affects their responses to drugs.

Answer: Pharmacogenetics

13) A hospital pharmacy is also known as a/an _____ pharmacy.

Answer: inpatient

14) The first drug to be made by recombinant DNA technology was human insulin, and its trade name was _____.

Answer: Humulin

15) Deciphering the human _____ in 2000 opened up the field of possibility of using genes as drug therapy.

Answer: genome

16) Many states have passed laws to legalize or decriminalize the use of _____ for medical purposes, even though the federal government bans it as a Schedule I drug.

Answer: marijuana

17) The antidiabetic drug exenatide (Byetta) comes from the _____ of the Gila monster poisonous lizard.

Answer: saliva

18) An outpatient pharmacy in a clinic is also known as a/an _____ pharmacy.

Answer: ambulatory

19) _____ is the computerized creation and transmission of a prescription from a healthcare provider to the pharmacy.

Answer: E-prescribing

20) Pharmacy _____ is the use of a computerized database to store drug information and automate its retrieval.

Answer: informatics

21) A/An _____ is a healthcare professional who manages a pharmacy and dispenses medications.

Answer: pharmacist

22) 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: _____.

Answer: nose

23) A/An _____ drug is a prescription drug that has the potential for abuse or addiction.

Answer: Schedule

24) 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: _____.

Answer: nose

25) Define these abbreviations.

Fe _____

K _____

LA _____

SR _____

Answer: iron, potassium, long-acting, slow-release

26) The abbreviation *Rx* stands for the Latin word *recipere*, meaning "to _____."

Answer: take

27) A hospital pharmacy is also known as a/an _____ pharmacy.

Answer: inpatient

28) A large hospital may have a large central pharmacy as well as several smaller _____ pharmacies.

Answer: satellite

29) The use of a computerized database to store drug information and automate its retrieval when needed is known as pharmacy _____.

Answer: informatics

1.4 Matching Questions

Match the examples with their correct medical use.

A) prevent diseases

B) diagnose disease

C) treat symptoms, signs, conditions, and diseases

1) vaccinations given to immunize children

2) radiopaque dye used during x-ray procedures

3) antibiotics to kill bacteria and cure an infection

4) insulin to treat diabetes mellitus

5) contraceptive pills taken to avoid pregnancy

Answers: 1) A 2) B 3) C 4) C 5) A

Match the drug name with its discovery process.

- A) a totally new chemical is derived from molecular manipulation of a drug that is already in use
- B) a totally new chemical created through genetic DNA manipulation
- C) a totally new chemical substance discovered in the environment, from plants, animals, or the soil

6) diazepam

7) ampicillin

8) fexofenadine (Allegra)

9) human insulin (Humulin)

10) streptomycin

11) ziconotide (Prialt)

Answers: 6) A 7) A 8) A 9) B 10) C 11) C

1.5 Essay Questions

1) The FDA approves a prescription drug being reclassified as an over-the-counter drug if certain criteria are met. Describe all four of the criteria that need to be met.

Answer: The FDA approves a prescription drug being reclassified as an OTC drug if the following criteria are met: (1) the indication for the drug's OTC use is similar to its use as a prescription drug, (2) the patient can easily diagnose and monitor his or her own condition when using the OTC drug, (3) the OTC drug has a low rate of side effects/toxicity and a low potential for abuse, and (4) use of the OTC drug does not require the patient to have any special monitoring or ongoing tests.

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

Answer: The word *drug* means *dry* and refers to the use of dried herbs and plants as the first medicines. The Latin word for *drug* is *medicina*, from which we derive the words *medicine* and *medication*. A drug is any nonfood chemical substance that affects the mind or the body. The word *medicine* refers to a drug that is deliberately administered for its medicinal value as a preventive, diagnostic, or therapeutic agent. In common usage, the word *drug* can be used interchangeably with the word *medicine*, but *drug* can also refer to chemical substances that do not have a preventive, diagnostic, or therapeutic use (example: an illegal or street drug).

3) Describe the historical development of the apothecary, the first hospital-based pharmacy, and the first drug store operated by a registered pharmacist.

Answer: The first apothecary shop was established in the United States in 1729, the first hospital-based pharmacy in 1751, and the first drug store operated by a registered pharmacist in 1823.

4) What are the three arguments made by those who oppose reclassification of prescription drugs to become over-the-counter drugs?

Answer: Opponents to reclassification use these arguments: (1) consumers may actually pay more because health insurance plans will not reimburse for OTC drugs, (2) the excessive use of OTC drugs may increase the number of adverse drug-drug interactions, and (3) consumers may try to treat a serious illness with an OTC drug instead of visiting their healthcare providers for appropriate treatment with a prescription drug.