STUDY GUIDE
for
Pharmacology Part I
Drug Calculations

1. Atropine and digitalis are examples of drugs derived from
   a. plants
   b. minerals
   c. animals
   d. synthetics

2. Insulin and pitocin are examples of drugs derived from

   a. plants
   b. minerals
   c. animals
   d. synthetics

3. Calcium chloride and sodium bicarbonate are examples of drugs derived from
   a. plants
   b. minerals
   c. animals
   d. synthetics

4. Lidocaine and procainamide are examples of drugs derived from

   a. plants
   b. minerals
   c. animals
   d. synthetics

5. The Federal Food, Drug, and Cosmetic Act of 1938 required that

   a. all ingredients be placed on the label
   b. all opium by-products be classified according to schedules
   c. all prescriptions be filled within 72 hours
   d. all of the above

6. The Harrison Narcotic Act of 1915 regulates the sale of
   a. cocaine
   b. morphine
   c. all drugs
   d. barbiturates and amphetamines

7. The Controlled Substances Act of 1970 established

   a. schedules for abusive drugs
   b. time limits for filling prescriptions
   c. no refills for classified drugs
   d. all of the above

8. Furosemide, diazepam, and meperidine are examples of

   a. chemical names
   b. trade names
   c. brand names
   d. generic names

9. Lasix, Valium, and Demerol are examples of
   a. trade names
   b. chemical names
   c. official names
   d. generic names

10. The PDR is a useful tool for identifying drugs by
   a. name
   b. size
   c. color
   d. all of the above

11. D5W and Lactated Ringer's are examples of
   a. tinctures
   b. suspensions
   c. solutions
   d. emulsions

12. Iodine and methioliate are examples of
   a. tinctures
   b. suspensions
   c. solutions
   d. emulsions

13. Amoxicillin and calamine lotion are examples of
   a. emulsions
   b. spirits
   c. suspensions
   d. solutions

14. Ammonia capsules are examples of

a. emulsions
b. spirits
c. suspensions
d. tinctures

15. Oil and water form a/an

a. solution
b. emulsion
c. elixir
d. spirit

16. The difference between a syrup and an elixir is that
a. elixirs contain alcohol and flavoring
b. syrups contain alcohol and flavoring
c. elixirs contain drugs suspended in sugar and water
d. none of the above

17. Which of the following is not an example of a drug administered parenterally?
a. intramuscular
b. intravenously
c. subcutaneously
d. orally

18. The action of naloxone on morphine is an example of
a. synergism
b. antagonism
c. cumulative action
d. potentiation

19. Repeating boluses of lidocaine until the desired effect is reached is an example of
a. synergism
b. antagonism
c. cumulative action
d. potentiation

20. The enhancing effect of taking barbiturates with alcohol is an example of
a. synergism
b. antagonism
c. cumulative action
d. potentiation

21. Using albuterol and aminophylline to dilate the airways is an example of

a. synergism
b. antagonism
c. cumulative action
d. potentiation

22. A patient who once took 5mg of diazepam each day now requires 10 mg. This is an example of

a. potentiation
b. tolerance
c. becoming refractory
d. untoward effect

23. An individual reaction to a drug that is unusually different from that normally seen is called a/an

a. hypersensitivity
b. idiosyncrasy
c. adverse reaction
d. untoward effect

24. Isoproterenol is not given in cardiac arrest because it is

a. indicated
b. potentiated
c. synergistic
d. contraindicated

25. Which of the following will affect a drug's rate of absorption?

a. circulation
b. patient size and age
c. general medical condition
d. all of the above

26. Which of the following has the quickest absorption?

a. IM
b. SC
c. IV
d. PO

27. Which of the following is true regarding drug distribution?

a. binding to proteins normally produces a delayed onset
b. rapid onset usually means short duration
c. organs with the best circulation get the most drug concentration
d. all of the above

28. If drug X is a weak penetrator of the blood brain barrier,

a. it is probably not protein bound
b. it is probably ionized
c. it is not ionized
d. none of the above

29. The process of changing a drug to another form, either active or inactive, is known as

a. distribution
b. metabolism
c. biotransformation
d. pharmacokinetics

30. Drugs that bind to a receptor and produce a response are known as

a. antagonists
b. agonists
c. biotransformers
d. lytics

31. Drugs that bind to a receptor and block a response are known as
a. antagonists
b. agonists
c. inhibitors
d. mimetics

32. Drugs with a low therapeutic index
a. are difficult to titrate
b. have a narrow therapeutic range
c. are easy to overdose
d. all of the above

33. The sympathetic nervous system is responsible for
a. vegetative functions
b. custodial functions
c. "feeding and breeding"
d. the stress response

34. When stimulated, the sympathetic nervous system causes all of the following physiological responses except

a. pupil dilation
b. peripheral vasodilation
c. increased cardiac contractions
d. increased heart rate

35. The sympathetic receptors are activated by the neurotransmitter

a. acetylcholine
b. insulin
c. norepinephrine
d. dopamine

36. Which of the following adrenergic receptors causes bronchodilation and peripheral vasodilation when stimulated?

a. beta 1
b. beta 2
c. alpha 1
d. dopaminergic

37. Drugs that stimulate the sympathetic nervous system are called

a. sympathomimetics
b. sympatholytics
c. beta blockers
d. alpha antagonists

38. Stimulating the dopaminergic receptors causes

a. increased heart rate
b. peripheral vasoconstriction
c. renal, coronary, and cerebral artery vasodilation
d. bronchodilation, vasodilation, and pupil constriction

39. Which receptors cause peripheral vasoconstriction?

a. beta 1
b. beta 2
c. alpha 1
d. dopaminergic

40. Which receptors would stimulate the heart to beat faster and stronger?

a. beta 1
b. beta 2
c. alpha 1
d. dopaminergic

41. The parasympathetic nervous system is responsible for

a. "Feeding and breeding"
b. resting heart rate
c. digestion
d. all of the above

42. The parasympathetic nervous system exerts its control via

a. several cranial nerves
b. vagus nerve
c. some sacral nerves
d. all of the above

43. The parasympathetic nervous system uses the neurotransmitter

a. norepinephrine
b. epinephrine
c. acetylcholine
d. cholinesterase

44. When stimulated, the parasympathetic receptors cause

a. decreased salivation
b. pupil dilation
c. increased heart rate
d. none of the above

45. An example of a parasympatholytic is

a. epinephrine
b. propranolol
c. atropine
d. acetylcholine

46. Intradermal drugs are most commonly used for

a. shock
b. diagnostic testing
c. prophylaxis
d. respiratory emergencies

47. Nitroglycerine patches are examples of _____ medications.

a. intradermal
b. transtracheal
c. subcutaneous
d. transdermal

48. A subcutaneous injection is administered at a _____ degree angle to the skin.

a. 45
b. 90
c. 180
d. 5

49. An intramuscular injections administered at a _____ a degree angle to the skin.

a. 45
b. 90
c. 1800
d. 5

50. It is important to aspirate for blood return when administering medications via the IM route to ensure

a. the airway is patent
b. the needle is in a vein
c. the needle is in the artery
d. the needle is not in a blood vessel

51. Medications that contain only small amounts of narcotic and have a limited abuse potential are classed as schedule _____ drugs.

a. I
b. II
c. III
d. IV
e. V

52. Drugs that have a high potential for abuse and a severe dependence liability but also have accepted medical uses are classified as schedule _____ drugs.

a. I
b. II
c. III
d. IV
e. V

53. Drugs that are frequently abused and have no accepted medical uses are classified as schedule _____ drugs.

a. I
b. II
c. III
d. IV
e. V

54. A drug container that may have multiple doses extracted from it on separate occasions is called a _____.

a. ampule
b. vial
c. capsule
d. aliquot

55. The administration of an IV solution by regulating its flow rate based upon observation of desired or undesired effects is called

a. estimation
b. calculation
c. approximation
d. fluctuation
e. titration

56. Medications that are administered orally, rectally, or vaginally are called _____ drugs.

a. injectable
b. noninjectable
c. enteral
d. parenteral
e. transenteral

57. Medications that are administered by transtracheal, intracardiac, or intralingual routes are called _____ drugs.

a. injectable
b. noninjectable
c. enteral
d. parenteral
e. transenteral

58. Routes employed for drug elimination include all of the following except

a. liver into the bile
b. kidneys via urination
c. lungs via expiration
d. digestive system via feces
e. oropharynx via salivation

59. A drug that influences heart rate is considered a _____.

a. inotrope
b. chronotrope
c. dromotrope
d. chemotrope

60. A drug that influences cardiac contractile force is considered a _____.
a. inotrope
b. chronotrope
c. dromotrope
d. chemotrope

61. A drug that influences the rate of impulse conduction is considered a _____.
a. inotrope
b. chronotrope
c. dromotrope
d. chemotrope

62. Match the drugs below with the following drug classes:

a. antihypertensive
b. beta blocker
c. calcium channel blocker
d. diuretic
e. benzodiazepine

Adalat
Minipres
Spironolactone
Xanax
Amiloride
Apresoline
Capoten
Catapres
Halcion
Inderal

63. Match the drugs below with the following drug classes:

a. bronchodilator
b. antidepressant
c. antibiotic
d. oral hypoglycemic
e. NSAID

Alupent
Amitril
Elavil
Amoxapine
Bactrim
Biaxin
Brethaire
Bronkosol
Ceftin
Cipro
Diabeta
Diabinese
Doxepin
Naprosyn
Motrin
Glucophage
Tofranil
Keflex
Micronase

64. Match the drugs below with the following drug classes:

a. Nitrate
b. Cardiac Glycoside
c. thyroid hormone
d. histamine blocker

Isobid
Isordil
Lanoxin
Digoxin
Digitoxin
Levoxine
Nitro-bid
Nitro-dur
Proloid
Isosorbide
Synthroid
Tagamet
Pepcid
Axid

65. A patient indicates that he weighs 110 pounds. This is equivalent to _____ kg.

a. 50
b. 51
c. 55
d. 56

66. A patient weighing 80 kg weighs _____ pounds.

a. 170
b. 176
c. 36
d. 40

67. 3 kg = _____ mg

a. 30
b. 300
c. 3000
d. 30,000
e. 3,000,000

68. 8 mg = _____ ug
a. 80
b. 800
c. 8000
d. 80,000

69. 30 ug = _____ mg

a. 3
b. .3
c. 0.3
d. 0.03

70. 5 kg = _____ug

a. 5000
b. 50,000
c. 500,000
d. 5,000,000
e. 5,000,000,000

Determine the following drug concentrations:

71. 100 mg dissolved in 100 ml
a. 1 mg/ml
b. 1 ug/ml
c. 10 mg/ml
d. 10 ug/ml

72. 1 g dissolved in 10 ml
a. 1 g/ml
b. 1000 mg/ml
c. 100 mg/ml
d. 0.1 mg/ml

73. Calculate the volume to be administered for the following orders using a 60 gtts/cc set:

a. 60 gtts/min
b. 45 gtts/min
c. 30 gtts/min
d. 15 gtts/min

Drug	Solution	Order
1 g	250 ml	3 mg/min
2 g	500 ml	2 mg/min
1 mg	250 ml	1 ug/min
400 mg	500 ml	5 ug/kg/min (176 pounds)
1 g	500 ml	2 mg/min
500 mg	125 ml	2 mg/min
800 mg	500 ml	5 ug/kg/min (352 pounds)

74. Which of the following correctly indicates the rate of absorption from the fastest route to the slowest route?

a. Intravenous, endotracheal, sublingual, subcutaneous, oral
b. Endotracheal, intravenous, subcutaneous, sublingual, oral
c. Intravenous, endotracheal, oral, sublingual, subcutaneous
d. Endotracheal, intravenous, oral, sublingual, subcutaneous