Pharmacokinetics and pharmacodynamics:

1) In the following, what describes absorption?
   a) The tightness that drug bind to receptor
   b) Irreversible transport from site of administration to the bloodstream
   c) Drug leaving the blood to peripheral tissue
   d) Proportional to drug concentration in plasma (First order kinetics implied)

2) In the following, what describes distribution?
   a) The tightness that drug bind to receptor
   b) Irreversible transport from site of administration to the bloodstream
   c) Drug leaving the blood to peripheral tissue
   d) Proportional to drug concentration in plasma (First order kinetics implied)

3) In the following, what describes affinity?
   a) The tightness that drug bind to receptor
   b) Irreversible transport from site of administration to the bloodstream
   c) Drug leaving the blood to peripheral tissue
   d) Proportional to drug concentration in plasma (First order kinetics implied)

4) Which one of the following is true for a drug whose elimination from plasma shows first order kinetics?
   a) Half-life is proportional to the drug concentration in plasma
   b) The amount eliminated per unit of time is constant
   c) A plot of drug concentration versus time is a straight line
   d) The rate of elimination is proportional to the plasma concentration

5) The addition of glucuronic acid to a drug?
   a) Lowers its water solubility
   b) Usually leads to inactivation of drug
   c) Is an example of phase I reactions
   d) Involves cytochrome P450

6) A patient is treated with drug A, which has high affinity for albumin and is administered in amount that don't exceed the binding capacity of albumin, A second drug B also has high affinity for albumin but is administered in amounts that are 100 times the binding capacity of albumin. what happens after administering drug B?
   a) Increase tissue concentration of drug A
   b) Increase serum concentration of unbound drug A
   c) Decrease tissue concentration of drug A
   d) Decrease half-life of drug A

7) Drugs showing zero-order kinetics of elimination?
   a) Are more common than those showing first order kinetics
   b) Decrease in concentration exponentially with time
   c) Amount of drug eliminated is independent of dose
   d) Show constant fraction of the drug eliminated per unit time

8) A drug with half-life of 12 hours is administered Intravenously. how long will it take for the drug to reach 90% of its final steady state?
   a) 90 hours
   b) 40 hours
   c) 30 hours
   d) 24 hours

9) The route of drug administration is determined by?
   a) Water solubility of the drug
   b) Ionization of the drug
   c) Desirability of rapid onset of action of the drug
   d) All of the above

10) All of the following about passive absorption is true EXCEPT?
   a) The driving force is concentration gradient
   b) Doesn't involve a carrier
   c) The process shows a low structural specificity
   d) The process is saturable

11) The following factor(s) influencing drug absorption?
   a) Blood flow to the absorption area
   b) Total surface area available
   c) Contact time at the absorption surface
   d) All of the above

12) Factor(s) that influence bioavailability of drugs?
   a) First-pass hepatic metabolism
   b) Solubility of the drug
   c) Chemical instability in GIT
   d) All of the above

13) The following factor(s) determine drug distribution?
   a) Blood flow
   b) Capillary permeability
   c) Binding of drug to plasma proteins
   d) All of the above

14) All of the following is true about drug metabolism EXCEPT?
   a) pro-drug must be metabolized to their active forms
   b) First-order kinetics metabolism means constant amount of drug is metabolized per unit time
   c) In zero-order kinetics metabolism. the enzyme is saturable
   d) None of the above

15) All of the following is true about drug metabolism EXCEPT?
   a) Water soluble drugs must first be metabolized in the liver
   b) Phase I reaction function to convert lipophilic molecules into lipophobic
   c) Phase II reaction include conjugation with endogenous substances

16) Pharmacokinetics is?
    a) The study of biological and therapeutic effect of drugs
    b) The study of absorption, distribution, metabolism and excretion of drugs
    c) The study of mechanisms of drug action
    d) The study of methods of new drug development

17) What kind of substances can't penetrate membranes by passive diffusion?
    a) Lipid soluble
    b) Non-ionized
    c) Hydrophobic
    d) Hydrophilic

18) What's implied by (active transport)?
    a) Transport of drugs through a membrane by means of diffusion
    b) Transport without energy consumption
    c) Engulf of drug by a cell membrane with a new vesicle formation
    d) Transport against concentration gradient

19) Pick out the appropriate alimentary route of administration when passage of drug through liver is minimized?
    a) Oral
    b) Transdermal
    c) Rectal
    d) Intraduodenal

20) Which route of drug administration is most likely to lead to the first pass effect?
    a) Sublingual
    b) Oral
    c) Intravenous
    d) Intramuscular

21) What is characteristic of the sublingual route?
    a) fast absorption
    b) Drug exposed to gastric secretion
    c) Drug exposed to more prominent liver metabolism
    d) Drug can be administrated in a variety of doses

22) Parenteral administration?
    a) Cannot be used with unconsciousness patients
    b) Generally, results in a less accurate dosages than oral administration
    c) Usually produces a more rapid response than oral administration
    d) Is too slow for emergency use

23) Correct statements listing characteristics of a particular route of drug administration include all of the following EXCEPT?
    a) Intravenous administration provides a rapid response
    b) Intramuscular administration requires a sterile technique
    c) Inhalation provides slow access to the general circulation
    d) Subcutaneous administration may cause local irritation

24) Pick out the right statement?
    a) Microsomal oxidation always results in inactivation of a compound
    b) Microsomal oxidation results in a decrease of compound toxicity
    c) Microsomal oxidation results in an increase of ionization and water solubility of a drug
    d) Microsomal oxidation results in increase of lipid solubility of a drug thus its excretion from the organism is facilitated

25) Metabolic transformation (Phase I) is?
    a) Acetylation and methylation of substances
    b) Transformation of substances due to oxidation, reduction or hydrolysis
    c) Glucuronide formation
    d) Binding to plasma protein

26) Which of the following is not a conjugation of a drug?
    a) Glucuronidation
    b) Sulfate formation
    c) Hydrolysis
    d) Methylation

27) Metabolic (Phase I and Phase II) reactions usually result in increase of substance biological activity?
    a) True
    b) False

28) Half-life of drug doesn't depend on?
    a) Biotransformation
    b) Time of drug absorption
    c) Concentration of a drug in plasma
    d) Rate of drug elimination

29) All of the following statements related to the binding of drugs by plasma proteins are correct EXCEPT?
    a) Bound drug is unable to diffuse into tissue until it becomes unbound
    b) Displacement of the bound drug by another drug can increase the effects of a given dosage of the first drug
    c) Bound drug is the pharmacologically active part of the drug
    d) None of the above

30) Binding of a drug to plasma proteins will tend to?
    a) Decrease half-life
    b) Decrease rate of glomerular filtration
    c) Increase its rate of biotransformation
    d) Increase its concentration in plasma

31) Pharmacodynamics involves?
    a) Info about main mechanisms of drug absorption
    b) Info about unwanted effects
    c) Info about biological barriers
    d) Info about excretion of a drug from the organism

32) Proteins which a drug molecule bind are?
    a) Receptors
    b) Ion channels
    c) Carriers
    d) All of the above

33) If an agonist can produce maximal effect and has high efficacy it's called?
    a) Partial agonist
    b) Antagonist
    c) Agonist-Antagonist
    d) Full Agonist

34) Irreversible interaction of an antagonist with a receptor is due to?
    a) Ionic bonds
    b) Hydrogen bonds
    c) Covalent bonds
    d) All of the above

35) In the previous question, the antagonist represents?
    a) Competitive antagonism
    b) Noncompetitive antagonism

36) Tick the substances whose mechanisms are based on interaction with ion channels?
    a) Sodium channel blockers
    b) Calcium channel blockers
    c) Potassium channel activators
    d) All of the above

37) What term is used to describe a more gradual decrease in responsiveness to a drug, taking weeks or months or years to develop?
    a) Refractoriness
    b) Cumulative effect
    c) Tolerance
    d) Tachyphylaxis

38) If two drugs with the same effect, taken together, produce an effect equal in magnitude to the sum of their effects given individually. It's called?
    a) Antagonism
    b) Synergism
    c) additive drug effect
    d) None of the above

39) Chemical antagonism means?
    a) Two drugs combine with one another to form an inactive compound
    b) Two drugs combine with one another to form a more active compound
    c) Two drugs acting competitively on the same receptor
    d) Two drugs acting on different receptors with opposite effects at the same time

40) If 87.5% of a drug is eliminated via first order kinetics in 15 hours. Half-life of this drug is expected to be?
   a) 5 hours
   b) 10 hours
   c) 15 hours
   d) 30 hours

41) A pharmacological response might be reduced by all of the following EXCEPT?
   a) Low solubility of drug
   b) Abnormal target receptors
   c) Lack of absorption at site of administration
   d) Interference with drug elimination

42) The oral route of drug administration tends to be associated with all of the following EXCEPT?
   a) Relative safety
   b) Rapid response
   c) Convenience
   d) Incomplete absorption

43) Therapeutic index of a drug reflects its?
   a) Relative safety
   b) Duration of action
   c) Onset effects
   d) Potency

44) Which of the following is CORRECT?
   a) Value of t (1/2) depends on rate of absorption
   b) Increase in Kd of drug with plasma protein is associated with increase in T (1/2)
   c) T (1/2) value is required for dose estimation
   d) Drugs associated with short T (1/2) are characterized by low systemic clearance.

45) Which of the following statements about drug receptor interactions is TRUE?
   a) An agonist interacts with its target receptors and produces a biological effect
   b) A reversible antagonist shifts the dose response curve to the right without affecting the maximal response
   c) Partial agonist are drugs that have affinity for receptors with moderate efficacy
   d) All of the above

46) Variation in pharmacological responses to drugs among individuals can be attributed to?
   a) Drug-Drug interactions
   b) Sex
   c) Age
   d) All of the above

47) Which of the following statements is CORRECT?
   a) If 10 mg of drug A produces the same response as 100 mg of drug B, then drug A is more efficacious than drug B
   b) Skipping a dose is not important in calculating the time to reach steady state
   c) Generally, Reduction in the oxidative metabolism through cytochrome P450 system result in a reduction in the drugs clearance

48) When two drugs with the same effect give together and produce an effect that is greater in magnitude than the sum of their effects when the drugs are given individually, we call this?
   a) Competitive drug effect
   b) Synergic drug effect
   c) Additive drug effect
   d) Potentiation drug effect

49) Hydrophilic drug with a law molecular weight is most likely to distribute to which of the following compartments?
   a) Extracellular
   b) Plasma
   c) Total body water
   d) A + B

50) Which of the following statements is CORRECT?
   a) In competitive antagonism a higher concentration of agonist is necessary to achieve the therapeutic effect of the agonist
   b) With competitive antagonism, the dose effect curve is shifted to the left
   c) Competitive antagonism is produced by antagonists that have the ability to activate receptors
   d) Emax does not depend on the number of drug-receptor complexes formed

1) A 2) C 3) A 4) D 5) B 6) B 7) C 8) B 9) D 10) D 11) D 12) D 13) D 14) B 15) A 16) B 17) D 18) D 19) C 20) B 21) A 22) C 23) C 25) B 26) C 27) B 28) B 29) C 30) B 31) B 32) D 33) D 34) C 35) B 36) D 37) C 38) C 39) A 40) A 41) D 42) B 43) A 44) C 45) D 46) D 47) C 48) B 49) C 50) A

Good Luck <3