001. Pharmacokinetics is:
a) The study of biological and therapeutic effects of drugs
b) The study of absorption, distribution, ****bolism and excretion of drugs
c) The study of mechanisms of drug action
d) The study of methods of new drug development

002. What does "pharmacokinetics" include?
a) Complications of drug therapy
b) Drug biotransformation in the organism
c) Influence of drugs on ****bolism processes
d) Influence of drugs on genes

002. What does "pharmacokinetics" include?
a) Pharmacological effects of drugs
b) Unwanted effects of drugs
c) Chemical structure of a medicinal agent
d) Distribution of drugs in the organism

003. What does "pharmacokinetics" include?
a) Localization of drug action
b) Mechanisms of drug action
c) Excretion of substances
d) Interaction of substances

004. The main mechanism of most drugs absorption in GI tract is:
a) Active transport (carrier-mediated diffusion)
b) Filtration (aqueous diffusion)
c) Endocytosis and exocytosis
d) Passive diffusion (lipid diffusion)

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

006. A hydrophilic medicinal agent has the following property:
a) Low ability to penetrate through the cell membrane lipids
b) Penetrate through membranes by means of endocytosis
c) Easy permeation through the blood-brain barrier
d) High reabsorption in renal tubules

007. What is implied by «active transport»?
a) Transport of drugs trough 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

008. What does the term "bioavailability" mean?
a) Plasma protein binding degree of substance
b) Permeability through the brain-blood barrier
c) Fraction of an uncharged drug reaching the systemic circulation following any route administration
d) Amount of a substance in urine relative to the initial doze

009. The reasons determing bioavailability are:
a) Rheological parameters of blood
b) Amount of a substance obtained orally and quantity of intakes

c) Extent of absorption and hepatic first-pass effect
d) Glomerular filtration rate

010. Pick out the appropriate alimentary route of administration when passage of drugs through liver is minimized:
a) Oral
b) Transdermal
c) Rectal
d) Intraduodenal

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

012. What is characteristic of the oral route?
a) Fast onset of effect
b) Absorption depends on GI tract secretion and motor function
c) A drug reaches the blood passing the liver
d) The sterilization of medicinal forms is obligatory

013. Tick the feature of the sublingual route:
a) Pretty fast absorption
b) A drug is exposed to gastric secretion
c) A drug is exposed more prominent liver ****bolism
d) A drug can be administrated in a variety of doses

014. Pick out the parenteral route of medicinal agent administration:
a) Rectal
b) Oral
c) Sublingual
d) Inhalation

015. Parenteral administration:
a) Cannot be used with unconsciousness patients
b) Generally results in a less accurate dosage than oral administration
c) Usually produces a more rapid response than oral administration
d) Is too slow for emergency use

016. What is characteristic of the intramuscular route of drug administration?
a) Only water solutions can be injected
b) Oily solutions can be injected
c) Opportunity of hypertonic solution injections
d) The action develops slower, than at oral administration

017. Intravenous injections are more suitable for oily solutions:
a) True
b) False

018. 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

019. Most of drugs are distributed homogeneously.
a) True
b) False

020. Biological barriers include all except:
a) Renal tubules
b) Cell membranes
c) Capillary walls
d) Placenta

021. What is the reason of complicated penetration of some drugs through brain-blood barrier?
a) High lipid solubility of a drug
b) Meningitis
c) Absence of pores in the brain capillary endothelium
d) High endocytosis degree in a brain capillary

022. The volume of distribution (Vd) relates:
a) Single to a daily dose of an administrated drug
b) An administrated dose to a body weight
c) An uncharged drug reaching the systemic circulation
d) The amount of a drug in the body to the concentration of a drug in plasma

023. For the calculation of the volume of distribution (Vd) one must take into account:
a) Concentration of a substance in plasma
b) Concentration of substance in urine
c) Therapeutical width of drug action
d) A daily dose of drug

024. A small amount of the volume of distribution is common for lipophylic substances easy penetrating through barriers and widely distributing in plasma, interstitial and cell fluids:
a) True
b) False

025. The term "biotransformation" includes the following:
a) Accumulation of substances in a fat tissue
b) Binding of substances with plasma proteins
c) Accumulation of substances in a tissue
d) Process of physicochemical and biochemical alteration of a drug in the body

026. Biotransformation of the drugs is to render them:
a) Less ionized
b) More pharmacologically active
c) More lipid soluble
d) Less lipid soluble

027. Tick the drug type for which microsomal oxidation is the most prominent:
a) Lipid soluble
b) Water soluble
c) Low molecular weight
d) High molecular weight

028. 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 an increase of lipid solubility of a drug thus its excretion from the organism is facilitated

029. Stimulation of liver microsomal enzymes can:
a) Require the dose increase of some drugs
b) Require the dose decrease of some drugs

c) Prolong the duration of the action of a drug
d) Intensify the unwanted reaction of a drug

030. ****bolic transformation (phase 1) is:
a) Acetylation and methylation of substances
b) Transformation of substances due to oxidation, reduction or hydrolysis
c) Glucuronide formation
d) Binding to plasma proteins

031. Biotransformation of a medicinal substance results in:
a) Faster urinary excretion
b) Slower urinary excretion
c) Easier distribution in organism
d) Higher binding to membranes

032. Conjugation is:
a) Process of drug reduction by special enzymes
b) Process of drug oxidation by special oxidases
c) Coupling of a drug with an endogenous substrate
d) Solubilization in lipids

033. Which of the following processes proceeds in the second phase of biotransformation?
a) Acetylation
b) Reduction
c) Oxidation
d) Hydrolysis

034. Conjugation of a drug includes the following EXCEPT:
a) Glucoronidation
b) Sulfate formation
c) Hydrolysis
d) Methylation

035. ****bolic transformation and conjugation usually results in an increase of a substance biological activity:
a) True
b) False

036. In case of liver disorders accompanied by a decline in microsomal enzyme activity the duration of action of some drugs is:
a) Decreased
b) Enlarged
c) Remained unchanged
d) Changed insignificantly

037. Half life (t ½) is the time required to:
a) Change the amount of a drug in plasma by half during elimination
b) ****bolize a half of an introduced drug into the active ****bolite
c) Absorb a half of an introduced drug
d) Bind a half of an introduced drug to plasma proteins

038. Half life (t ½) doesn't depend on:
a) Biotransformation
b) Time of drug absorption
c) Concentration of a drug in plasma
d) Rate of drug elimination

039. Elimination is expressed as follows:
a) Rate of renal tubular reabsorption

b) Clearance speed of some volume of blood from substance
c) Time required to decrease the amount of drug in plasma by one-half
d) Clearance of an organism from a xenobiotic

040. Elimination rate constant (Kelim) is defined by the following parameter:
a) Rate of absorption
b) Maximal concentration of a substance in plasma
c) Highest single dose
d) Half life (t ½)

041. The most rapid eliminated drugs are those with high glomerular filtration rate and actively secreted but aren't passively reabsorbed:
a) True
b) False

042. Systemic clearance (CLs) is related with:
a) Only the concentration of substances in plasma
b) Only the elimination rate constant
c) Volume of distribution, half life and elimination rate constant
d) Bioavailability and half life

43.Which one of the following is TRUE for a drug whose elimination from plasma shows first-order kinetics?
A. The half-life of the drug is proportional to the drug concentration in plasma.
B. The amount eliminated per unit time is constant.
C. The rate of elimination is proportional to the plasma concentration.
D. Elimination involves a rate-limiting enzyme reaction operating at its maximal velocity (Vm).
E. A plot of drug concentration versus time is a straight line.

44- A drug with a half-life of 12 hours is administered by continuous intravenous infusion. How long will it take for the drug to reach 90% of its final steady-state level?
A. 90 hours.
B. 40 hours.
C. 30 hours.
D. 24 hours.
E. 18 hours.

45- Metabolism of drugs usually results in a product that is:
A. More lipid-soluble than the original drug.
B. More likely to distribute intracellularly.
C. More likely to produce adverse effects.
D. More likely to be reabsorbed by kidney tubules.
E. More water-soluble than the original drug.

46- All of the following conditions tend to increase the patient,s response to drugs EXCEPT:
A. Congestive cardiac failure.
B. Hepatic cirrhosis.
C. Hyperthyroidism.
D. Hyporthyroidism.
E. Hyperalbuminaemia.

47- Binding of a drug to plasma proteins will tend to:
A. Decrease half-life.
B. Decrease its rate of glomerular filtration.
C. Increase its rate of biotransformation.
D. Increase its concentration in the plasma.
E. Increase its pharmacological activity

48- All of the following are applicable to the concept of the blood-brain barrier EXCEPT:
A. Restricts the entry of hydrophilic compounds into the brain.
B. Has as one component, endothelial cells with pores accessible only by compounds of less than 200 Daltons.
C. Is penetrated only by organic solvents which are used as general anesthetic agents.
D. Is between the plasma space and the interstitial space of the brain.
E. Drugs which are well absorbed from the G.I.T penetrate well into the brain.

49- In general, biotransformation usually results in a product which is more:
A. Likely to produce side effects.
B. Likely to distribute intracellularly.
C. Lipid soluble than the original drug.
D. Likely to be reabsorbed by kidney tubules.
E. Water soluble than the original drug.

50- For a drug eliminated by a first-order kinetic process:
A. A constant amount of drug is eliminated per unit time.
B. The duration of action will be longer than for a drug eliminated by zero-order process.
C. The elimination rate constant will be independent of the dose administered.
D. It is unlikely to bind significantly to plasma albumin.
E. The apparent volume of distribution will vary with time.

51- All of the following statements regarding adverse drug reactions are correct EXCEPT?
A. Pharmacokinetic mechanisms are unimportant in causation.
B. Young children cannot be regarded as "small adults" as far as liability to adverse drug reactions is concerned.
C. The first few weeks of life is a period of special risk.
D. Old age is a period of special risk.
E. Atmospheric pollution in hospitals may be a cause.

52- A drug with a half life 8 hours is administered by continuous intravenous infusion. How long will it take for the drug to reach 90% of its final steady-state level?
A. 12 hours.
B. 18 hours.
C. 25 hours.
D. 30 hours.
E. 40 hours.

53- 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. A drug that is bound by plasma proteins will have a smaller apparent volume of

distribution than if it were not bound.
C. Displacement of the bound drug by another drug can increase the effects of a given dosage of the first drug.
D. Acidic drugs are bound mostly to plasma albumin.
E. bound drug is the pharmacologically active part of the drug.

54- All of the following statements are true EXCEPT:
A. Biotransformation of drugs in the body usually yields products that diffuse across renal tubular membranes less readily than the parent compounds.
B. Biotransformation reactions often yield products that are inactive pharmacologically.
C. Biotransformation reactions can yield products that are pharmacologically more active than the parent compound.
D. Biotransformation reactions can yield products that are more lipophilic than the parent compound.
E. In some cases, biotransformation reactions enhance the toxicity of chemicals introduced into the body.

55- Which of the following are characteristic of phase 2 biotransformation reactions?
A. They oxidase primary amines
B. They hydroxylate aliphatic compounds.
C. They conjugate compounds with endogens substances such as glucuronic acid or sulfate.
D. They hydrolyze esters.
E. They reduce carbonyl oxygen to form hydroxyl groups.

56- Correct statements concerning characteristics of a particular route of drug administration include all of the following EXCEPT:
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D. Hyporthyroidism.
E. Hyperalbuminaemia.

59- What intravenous loading dose should be administered?
A. 180 mg.
B. 225 mg.
C- 400 mg.
D. 520 mg.
E. 800.

60- Binding of a drug to plasma proteins will tend to:
A. Decrease its half-life.
B. Decrease its rate of glomerular filtration.
C. Increase its rate of biotransformation.
D. Increase its concentration in the plasma.
E. Increase its pharmacological activity.

61- Which one of the following is true for a drug whose elimination shows first-order kinetics?
A. The half-life of the drug is proportional to the drug concentration in the plasma.
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