Choose the correct answer:

1- **Which is the most preferred formulation for drug administration is:**

a) iv injection
b) nasal drops
c) intrathacal
d) recatal suppositories
e) tablets

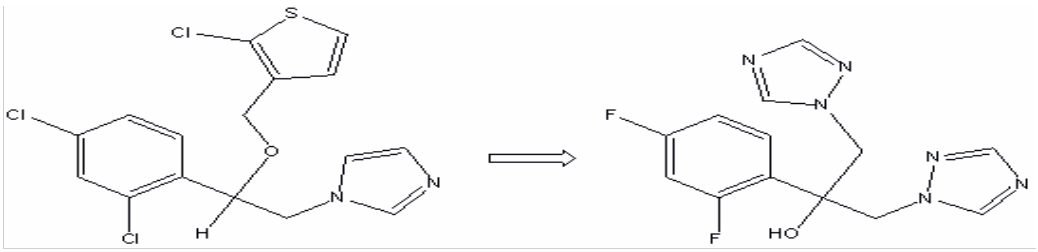
2- **Highly polar drugs:**

a) obey Lipinski's rule of five
b) are well absorbed through the gut wall
c) Are taken parentrally
d) Are taken orally
e) Both b) and c)

3- **According to Lipinski's rule of five, oral drugs should have all of the following except:**

a) molecular weight less than 50
b) no more than 5 hydrogen donor groups
c) no less than 5 hydrogen acceptor groups
d) a calculated log p value more than +5
e) none of the above

4-



(I) (II)

Strucrture (I) is Ticonazole, and the second (II) structure is Fluconazole, which of the following is true:

a) the less electronegative Cl atoms are replaced by the more electronegative F atoms
b) a more polar OH group is added in fluconazole
c) two F atoms were added as steric shield
d) both a) and b)
e) both b) and c)

5- **In the previous question, if you know that Ticonazole is more non-polar, you expect which of the following?**
a) fuconazole is more polar than ticonazole
b) fluconazole and can be used topically
c) fuconazole could be orally active
d) both a) and b)
e) both a) and c)

6- **Oral drugs should have the following requirements except:**
a) sufficient water solubility
b) obey Lipinski's rule of five
c) chemical stability towards stomach acid
d) sufficient stability towards metabolic enzymes
e) high lipid solubility

7- **Which of the following statements is false:**
a) phase II-metabolic reactions include conjugation reaction
b) phase I metabolic reactions are catalyzed by cytochrome P450
c) phase I metabolic reactions include addition of polar functional groups or exposing them
d) the activity of cyt P450 is affected by food and by other drugs taken
e) drugs taken orally are not subjected to first pass effect

8- **All of the following organs are responsible for drug excretion except:**
a) pancreas
b) kidneys
c) sweat glands
d) respiratory system
e) GIT

9- **Which of the following statements is incorrect:**
a) insulin can't be taken orally
b) local anaesthetics should be given by inhalation
c) nifuroxazide which is an intestinal disinfectant, is expected to be absorbed from the gut by active diffusion
d) levodopa and lisinopril are absorbed by carrier proteins
e) barbiturates are strongly bound to plasma proteins

10- **Which of the following is correct for Warfarin and sulfonamide:**
a) they are not bound to plasma proteins
b) warfarin will displace sulfonamide from plasma protein
c) sulfonamide will displace warfarin from plasma protein and cause blood clotting
d) warfarin has more potent action if taken with sulfonamide and can lead to haemorrhage
e) sulfonamide stimulates the metabolism of warfarin

11- **First pass effect means:**
a) drug is bound to plasma proteins
b) drug is distributed to fatty tissues
c) drug undergoes enzyme-catalyzed reactions in the liver
d) drug interacts with its receptor
e) drug distributes into interstitial fluids

12- **Which of the following is correct for drug absorption:**
a) it studies the mechanisms by which the drug reaches the blood supply
b) it is all the biochemical reactions the drug undergoes in the body
c) it is the ways of removal of the drug from the body
d) both a0 and b0
e) both a0 and c)

13- **Which of the following helps to prolong the duration of action of drugs in the body:**
a) strong binding to plasma protein
b) high distribution into fatty tissues
c) slow metabolism
d) all of the above
e) none of the above

14- **Which of the following is incorrect about Barbiturates (may be more than one):**
a) they can cross BBB
b) they can cross the placental barrier to the fetus
c) they are bound to plasma proteins
d) they are absorbed into fatty tissues

15- **Drug absorption depends on the following factors except:**
a) method of drug administration
b) drug hydrophilic/hydrophobic solubility
c) chemical stability of drug in stomach
d) molecular size of the drug
e) high distribution into fatty tissues

16- **Non-polar drugs:**
a)are easily excreted as such in urine
b) are reabsorbed into blood
c) are not excreted into the bile
d) are not excreted in sweat
e) are excreted in exhaled air

17- **Which of the following is an example of masking a polar functional group:**
a) to convert R-CH3- into R-CH2OH
b) to convert R-O-R into R-COOH
c) R-COOH into RCOOR
d) R-CH3 into RCHO e) R-O-R into R-OH

18- **Highly non-polar drugs:**
a) are soluble in GIT secretions and blood
b) are soluble in fat globules in GIT
c) are poorly absorbed from the gut
d) both a) and b)
e) both b) and c)

19- **Introducing a tert-butyl group into a drug molecule is a famous example of using …….. strategy:**
a) Polar group b) steric shield
c) bioisostere for –CH2- d) increasing solubility of the drug
e)none of the above

20- **Nordiazepm is an amine-containing drug that:**
a) follows Handerssen-Hasselbach equation for weak acids and bases
b) exists in the non- ionized form in the stomach
c) it is absorbed from the intestine
d) both a) and b)
e) both a) and c)

21- **Which of the following statements is true:**
a) too large molecular weight drugs are poorly absorbed because they are lipid soluble
b) polar drugs such as erythromycin are absorbed by passive diffusion
c) polar drugs with high molecular weight are absorbed by pinocytosis (without passing through the membrane).
d) both a) and b)
e) both b) and c)

22- **Which of the following is true about drug formulation:**
a) penicillins are taken by iv injection
b) enteric coated tablets ensure rapid disintegration in stomach
c) insulin can be applied in the form of an implant
d) both a) and b)
e) both a) and c)

23- **Penicillins can cross BBB by:**
a) passive diffusion
b) pinocytosis
c) carrier proteins
d) binding to plasma proteins
e) passing between membrane pores

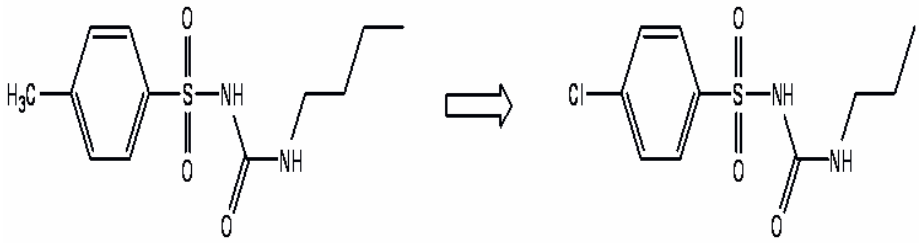
24- **Inhaled drugs are taken in the form of nasal sprays or gases to:**

a) exert local effect on respiratory system
b) give systemic effect
c) give antibacterial action in GIT
d) both a) and b)
e) both a) and c)

25- **Implants are designed to:**

a) give rapid effect
b) Give controlled release effect
c) avoid first pass effect
d) both a) and b)
e) both b) and c)

26-



The start drug is tolbutamide and the product is chlorpropamide. Which of the following is incorrect:

a) the CH3- group is replaced with Cl atom to prevent oxidation of CH3 group
b) the CH3- group in tolbutamide can be easily oxidized into -CH2OH then to –COOH
c) this modification is used to prolong the duration of action of chlorpropamide
d) this modification is achieved by group shift
e) none of the above

27- **Which of the following is incorrect:**

a) using carbidopa and levodopa is an example of sentry drug
b) using clavualnic acid is an example of prodrug modification
c) a drug may fail clinical trials if it proves to be toxic
d) carbidopa can't cross BBB while levodopa can.

28- **Which of the following is true:**

a) enteric coated tablets are designed to disintegrate only in stomach
b) sustained release tablets or capsules allow rapid absorption of the drug
c) sublingual tablets are designed to give fast onset action of the drug and avoid first pass effect
d) drugs are not absorbed from topical use
e) tablets contain the active ingredient only

29- **All of the following routes of drug administration would avoid first pass effect except:**
a) nasal spray
b) iv injection
c) sublingual tablets
d) ointment
e) coated tablets

30- **In drug design we may increase the susceptibility of drug to metabolic reaction in case of:**
a) drug toxicity
b) lingering side effects
c) drug tolerance
d) short drug half-life
e) both a) and b)

31- **Which of the following is incorrect:**
a) valium is the prodrug of nordiazepam
b) salicylic acid is a prodrug and has more prolonged action than aspirin
c) calvulanic acid and ampicillin are examples of sentry drug strategy
d) both a) and b)
e) both a) and c)

32- **Drugs are given by iv injection because all of the following except:**
a) they are hydrolyzed by stomach acid
b) they are highly polar to be absorbed from the gut wall
c) they are sufficiently non-polar to be absorbed from the gut
d) to have rapid onset of action

33- **Drugs may be given by other routes than oral route such as:**
a) general anaesthetics are given by inhalation.
b) asthma drugs are given by nasal spray.
c) local anaesthetics are given by iv infusion.
d) both a) and b).
e) both a) and c).

34- **When replacing CH3- in a drug molecule with -COOH and -NH2 and still retaining the same biological. This strategy :**
a) is called bioisosteres
b) is called steric shield.
c) is called stereoelctronic effect
d) is used to shorten the duration of action of drugs
e) is used to make drugs less resistant to metabolism

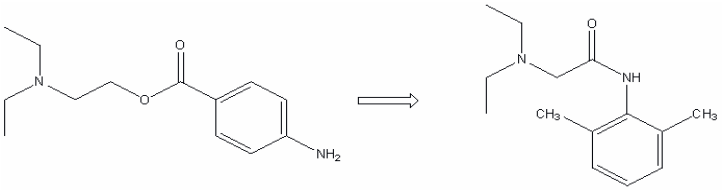
35- **All of the following are Factors affecting drug dosage except:**

a) pharmacokinetic parameters of drug
b) age, sex ,diet, and environment
c) dosing time, drug-drug interactions
d) obesity and race
e) drug tolerance

36- **Frequency of doses is estimated by knowing:**

a) therapeutic index of the drug
b) amount of drug per dose
c) pharmaceutical formulation of the drug
d) partition coefficient of the drug
e) half-life of the drug

37-



The first drug is Procaine and the second drug is Lidocaine. Which of the following strategies was or were used:

a) bioisostere modification
b) metabolic block modification
c) steric shield modification
d) group shift modification
e) stereoelctronic modification

38- **Which of the following is true:**

a) levodopa is the prodrug of dopamine
b) levodopa crosses BBB by carrier protein
c) carbidopa protects levodopa from peripheral decarboxylase enzyme
d) all of the above
e) none of the above

39- **Some high molecular weight drugs are absorbed by:**

a) passive diffusion
b) pinocytosis
c) passing through pores between gut cells
d) carrier proteins
e) not absorbed at all

40- **Drug dosing means:**

a) drug formulation
b) drug amount per dose and frequency of administration
c) drug therapeutic index
d) study of drug's pharmacokinetic parameters e) both b) and c)