1- **A drug formulation which is used to control drug release and to improve patient compliance:**

Enteric coated formulation
Immediate release formulation
Extended release formulation
Sublingual formulation
Parenteral formulations

2- **The half life of an orally administered is 10 hours. How long does it take for the drug to reach 87.5% of the steady state concentration following repeated oral administration of the drug?**

10 hours
20 hours
30 hours
80 hours
160 hours

3- **A three year old boy is brought to the emergency room after taking a high dose of antihistamine (promethazine) which has a very good distribution to the tissues and a pka of 9.1 , which of the following is true regarding this drug?**

Urinary excretion rate is increased by $NaHCO_3$ administration
Urinary excretion rate is increased by NH_4CL administration
The ionization of the drug will be higher in the intestine PH than the stomach PH
Hemodialysis is the most effective method for elimination
Absorption of drug from stomach is faster than small intestine

4- **A 71 year old man prescribed digoxin for new onset arrhythmia , his doctor explains the full effect will not be seen for one week. Which one of the following is responsible for this delayed effect?**

Clearance
Absorption
Volume of distribution
First pass metabolism
Half life

11- **Glomerular filtration rate of drugs is affected by:**

. Lipid solubility of drug

PH of the medium

Protein binding

Rate of tubular secretion

All of the above

12- **Anesthetic gases are best administered by:**

Oral route

inhalation

sublingual

rectal

intrathecal

13- **If the amount of the drug in the body declines from 100% of the dose (IV bolus injection) to 25% of the dose in 12 hours, what is the half life of this drug?**

1 hour

4 hours

6 hours

2 hours

3.5 hours

14- **A 64-year-old female patient (60 kg) is treated with experimental Drug A for type 2 diabetes. Drug A is available as tablets with an oral bioavailability of 60%. If the Vd is 6L/kg and the desired steady-state plasma concentration is 3.0 mg/L, which of the following is the most appropriate oral loading dose of Drug A?**

30mg

1800 mg

1080 mg

360 mg

400 mg

15- **All of the following statements about plasma protein binding of a drug are true <u>except:</u>**

Displacement of a drug from plasma protein binding sites results in a transient increased volume of distribution (VD)

Displacement of a drug from plasma protein binding sites makes more free drug available for glomerular filtration

Displacement of a potent drug that is normally more than 95% bound may cause toxicity

Albumin is the major protein involved in protein binding of drugs

Drugs that are highly bound to plasma proteins generally have a greater VD compared with drugs that are highly bound to tissue proteins

16- **Redistribution is a feature of:**

Highly plasma protein bound drugs
Depot preparations
Poorly lipid soluble drugs
Highly lipid soluble drugs
High molecular weight drugs

17- **Which of the following drug metabolizing reactions is entirely not involved in the CYP 450 system**

Glucuronide conjugation
Hydrolysis
Oxidation
Reduction
Amine oxidation

18- **First pass metabolism:**

Can increase the oral bio-availability of the drug
Occurs only in the liver
Is higher on intravenous administration
Necessitates high oral dose for certain drugs
Always result in products with decreased activity

19- **One of the following enteral drugs has a very low bioavailability :**

codeine
phenytoin
nitroglycerin
heparin
aspirin

20- **Which of the following cytochrome isoforms is responsible for metabolizing the largest number of drugs?**

CYP1A2
CYP2C9
CYP2C19
CYP2D6
CYP3A4

21- **What is true regarding amiodarone and warfarin interaction?**

Amiodarone displace warfarin from it plasma protein binding sites thus increases its elimination
Amiodarone is a CYP 450 inducer that increases the metabolism of warfarin, thus we need to increase warfarin dose
Amiodarone is a CYP450 inhibitor that inhibits the metabolism of warfarin , thus we need to decrease amiodarone dose

D. Amiodarone is a CYP450 inhibitor that inhibits the metabolism of warfarin , thus we need to decrease warfarin dose

E. Amiodarone inhibits excretion of warfarin

22- A 30-year-old man is brought to the emergency department in a deep coma. Respiration is severely depressed and he has pinpoint pupils. His friends state that he self-administered a large dose of morphine 6 h earlier. An immediate blood analysis shows a morphine blood level of 0.25 mg/L. Assuming that the Vd of morphine in this patient is 200 L and the half-life is 3 h, how much morphine did the patient inject 6 h earlier?

25 mg
50 mg
100 mg
200 mg
Not enough data to predict

Q2: True of false: (10 marks)

1- Distribution to an organ is independent on blood flow and it is dependent on the free drug concentration gradient between blood and the tissue ( )

2- The concentration of such a drug in the blood will decrease by 50% for every half life , this statement follows zero order kinetics ( )

3- Most drugs in clinical use demonstrate first order kinetics.( )

4- When two drugs have the same active ingredients with the same bioavailability these are considered Pharmaceutically equivalent ( )

5- A drug that has a Vd of 4 L , means that it is highly lipophilic ( )

6- Binding of drugs to plasma albumin is irreversible ( )

7- A woman (70 kg) was given 150mg tobramycin (antibiotic) to treat her pneumonia, after 20 minutes, the plasma concentration was measured and it was 3mg/L , the apparent volume of distribution is 50 L ( )

8- The dose that is required to achieve a specific concentration with a single administration is called maintenance dose ( )

9- Reactions that convert the parent drug to a more polar (water-soluble) or more reactive produet by unmasking or inserting a polar functional group such as —OH, —SH, or —NH2 are phase I reactions ( )

10- Time needed to achieve steady state drug concentration is directly proportional to the infusion rate and clearance rate ( )