Sample Question set for Online End Semester Examination for Semester VI

Subject: Biopharmaceutics and Pharmacokinetics

1. Micronization of drugs usually has this effect on the effective surface area.
   a. Reduction
   b. Increase
   c. Unpredictable change
   d. No change

2. The relationship between surface area and dissolution rate is usually-
   a. Direct
   b. Inverse
   c. Unpredictable
   d. No correlation

3. The relationship between elimination rate constant & half life of drug is described by-
   a. $Ke= 0.693/t_{1/2}$
   b. $Ke= 0.105/t_{1/2}$
   c. $Ke= 2.303/t_{1/2}$
   d. $Ke= 2.303\ t_{1/2}$

4. One compartment model assumes that-
   a. The drug is distributed homogeneously throughout the body
   b. Body is divided in various compartments
   c. Drug circulates infinitely in the body
   d. The processes follow second order kinetics

5. Pharmacodynamics refers to-
   a. Effect of body on the drug
   b. Effect of drug on the body
   c. Interaction between the drug and receptors
   d. Elimination pathway of drug

6. Phase I reactions-
   a. Reduce hydrophilicity of molecule
   b. Are conjugation reactions
   c. Increase hydrophilicity of molecule

d. Prolong residence time of drug

7. Volume of distribution refers to-
   a. Volume of fluids in tissue
   b. Total body water
   c. Hypothetical volume in which drug is distributed
   d. Water with which the tablet is taken

8. Which are the major organs of elimination?
   a. Kidney & lungs
   b. Liver & kidney
   c. Liver & heart
   d. Heart & Kidney

9. Reabsorption is a ____ process
   a.   Active
   b.   Passive
   c.   Facilitated
   d.   Active as well as passive

10. GFR in an healthy adult is approx.__
    a. 130 ml/min
    b. 520 ml/min
    c. 130 L/min
    d. 520 L/min

11. BCS Class II drugs belong to-
    a. High solubility, High Permeability
    b. High solubility, Low Permeability
    c. Low solubility, Low Permeability
    d. Low solubility, High Permeability

12. Which of the following is a Phase II metabolism reaction?
    a. Oxidation
    b. Reduction
    c. Acetylation
    d. Hydrolysis

13. Rate of excretion can be calculated by
    a. Filtration+ Secretion+Reabsorption

b. Filtration+ Secretion-Reabsorption
c. Filtration- Secretion+Reabsorption
d. Filtration- Secretion-Reabsorption

14. A drug has half life of 4 hrs. What will be its elimination rate constant?
    a. $0.713 \ hr^{-1}$
    b. $0.026 \ hr^{-1}$
    c. $0.173 \ hr^{-1}$
    d. $0.021 \ hr^{-1}$

15. Absolute bioavailability is calculated with respect to
    a. Solution
    b. IV injection
    c. Innovator product
    d. Another dose

16. Dissolution Apparatus I of IP uses ……………………….as stirring element
    a. Paddle
    b. Basket
    c. Cylinder
    d. Rotating disk

17. Diffusion layer theory of drug dissolution is based on-
    a. Henderson- Hekelbach equation
    b. Noyce- Whitney equation
    c. pH- partition hypothesis
    d. distribution Law

18. Influence of gastric pH on the absorption of drug is explained by-
    a. Henderson- Hasselbach equation
    b. Noyce-Whitney equation
    c. pH- partition hypothesis
    d. Fick's law

19. The relationship between dose of drug & its plasma concentration is described by-
    a. Elimination rate constant
    b. Volume of distribution
    c. Clearance
    d. No correlation

20. Physiology based pharmacokinetic model is based on-
    a. Virtual compartments
    b. Affinity of drugs for different organs
    c. Elimination patterns
    d. First order kinetics

21. Absorption rate constant Ka can be calculated by-
    a. Directly from Plasma concentration- time profile
    b. Sigma minus method
    c. ARE method
    d. Method of residuals

22. _____ is the poorly perfused organ
    a. Liver
    b. Lungs
    c. Adipose
    d. Kidney

23. Vd of Carbamazepine is 1500 L. This indicates the drug is
    e. Hydrophilic
    f. Ionized
    g. Polar
    h. Lipophilic

24. Excretion is negligible at low plasma concentrations in case of drugs which are
    i. Actively reabsorbed
    j. Actively secreted
    k. Exclusively filtered
    l. Passively secreted

25. Crystalluria caused by precipitation of sulfonamides in the renal tubules and subsequent kidney damage can be overcome by
    a. Alkalinizing the urine
    b. Acidification of urine
    c. Inducing emesis
    d. Forced diuresis

26. Hepatic clearance is said to be perfusion rate limited, if

a. It undergoes high metabolism
b. It escapes metabolism
c. It is metabolized to poor extent
d. It shows intermediate metabolism rate

27. Drug of 400 Da is excreted in
   a. Urine
   b. Urine and Bile
   c. Blood
   d. Bile

28. Microsomal Enzymes are derived from
   a. Cytoplasm
   b. Mitochondria
   c. Endoplasimic reticulum
   d. Golgi body

29. On administration as IV bolus, a drug produces a concentration of 10 mcg/ml. If its volume of distribution is 56 lit, what will be its initial dose?
   a. 560 mg
   b. 2.5 mg
   c. 56 mg
   d. 25 mg

30. For claiming biowaiver, you have to show -
   a. Level B IVIVC
   b. Multiple Level C IVIVC
   c. Level C IVIVC
   d. Multiple Level B IVIVC

a. On administration as IV bolus, it produces a concentration of 100 mcg/ml.

    i. How long after the administration will the concentration fall to 25mcg/ml?

Find the amount of drug in body at that time A drug when given as IV bolus had elimination rate constant 0.21/hr. The volume of distribution was 230L & conc. In plasma at end of 6hrs was 0.5 mg/L. Find the initial dose & half life of drug.

Topic: ABSORPTION

Level: Moderately difficult

Topic: PHARMACOKINETICS
Level: Moderately Difficult

Level: Moderately Difficult

Absorption rate constant Ka can be calculated by-
a. Directly from Plasma concentration- time profile
b. Sigma minus method
c. ARE method

d. Method of residuals

Ans: Method of residuals

Topic: METABOLISM / BIOTRANSFORMATION

Level: Easy

Topic: DISTRIBUTION
Level: Easy

Topic: EXCRETION
Level: Easy