B. Pharm. CBCS Pattern Semester-VI

BP604T - Biopharmaceutics and Pharmacokinetics

P. Pages : 3 **GUG/W/23/14140**

Time : Three Hours * 7 7 2 3 * Max. Marks : 75

Notes : 1. All questions carry equal marks.
2. All questions are compulsory.
3. Diagrams and Chemical equation should be given wherever necessary.

1. Multiple Choice Questions. **20**

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

2) Out of following Tmax, which Tmax indicates faster drug absorption.
   a) 16 hours b) 3 hours
   c) 4 hours d) 2 hours

3) Absorption of poorly soluble drug is-
   a) Diffusion rate limited b) Dissolution rate limited
   c) Both (a) & (b) d) None of the above

4) Which form of drug shows rapid dissolution rate?
   a) Crystalline b) Amorphous
   c) Hydrate d) None of the above

5) Which compounds are excreted through the lungs?
   a) Lipophilic b) Gaseous
   c) Liquid and hydrophilic d) Solid less than 100 Dalton

6) Protein binding ------- the distribution of drugs.
   a) Decrease b) Increase
   c) No change d) None of the above

7) Which of the following is known as Tamoxifen binding site?
   a) Site I b) Site II
   c) Site III d) Site IV

8) --------- is the tight junctions between Sertoli cells.
   a) BBB b) Placental barrier
   c) Blood testis barrier d) Endothelial barrier

9) The phenomenon of decrease drug metabolizing ability of the enzymes by drugs is known as -------
   a) Enzyme induction b) Enzyme inhibition
   c) Both (a) and (b) d) None of the above

10) Renal excretion of drug depend on
    a) Urine flow
    b) pH of urine
    c) Physicochemical properties of drug
    d) All of above

11) What is bioequivalence?
    a) Comparison between 3-year-old drugs to the same new drug
    b) Comparison between a drugs to another drug
    c) Comparison between a drug's specific characteristics to a defined set of standards.
    d) Comparison between two or 3 characteristics of a drug to the same characteristics of a different drug.

12) The biological half-life of drug.
    a) Is a constant physical property of the drug
    b) Is a constant chemical property of the drug
    c) May be increased in patients with impaired renal failure.
    d) May be decreased in patients by giving the drug by rapid I.V. injection.

13) Drugs having ----- half-lives take a very short time to achieve plateau concentration.
    a) Shorter b) Longer
    c) Intermediate d) None of the above

14) Which of the following is not an important parameter of plasma level time studies?
    a) C max
    b) Tmax
    c) The area under the plasma level-time curve
    d) Steady state level

15) Which of the following is not a category of 2 compartment model?
    a) Two compartment model with elimination from the central compartment.
    b) Two compartment model with elimination from the peripheral compartment.
    c) Two compartment model with elimination from only plasma and blood.
    d) Two compartment model with elimination from both the compartments.

16) Method of residuals is also known as -------
    a) Feathering method b) Peeling method
    c) Both (a) and (b) d) None of above

17) Non-linear pharmacokinetic is also known as ---------
    a) Dose dependent b) Enzyme capacity limited
    c) Saturation pharmacokinetic d) All of the above

18) Which of the following is not a mechanism for pharmacokinetic analysis?
    a) Compartment analysis b) Non compartment analysis
    c) Physiologic modeling d) Human model

19) Under non-compartment analysis the following formula is used for calculation
    a) MRT = AUMC/AUC b) AUMC = MRT/AUC
    c) MRT = AUC/AUMC d) AUC = AUMC/MRT

20) The characteristic of non-linear pharmacokinetics include -------.
   a) Area under curve is proportional to the dose
   b) Elimination half-life remains constant
   c) Area under curve is not proportional to the dose
   d) Amount of drug excreted through remains constant

2. Solve **any two.** **2x10 =20**

a) Write a note on absorption of drugs from non per oral extra – vascular routes.

b) Discuss the non-renal routes of drug excretion.

c) Describe about the measurement of bioavailability in details.

3. Solve **any seven.** **5x7 =35**

a) Enlist the different mechanisms of drug absorption and explain any two in details.

b) Discuss the kinetics of protein binding.

c) Write about oxidation reaction of phase I metabolic pathway.

d) Explain the levels of In vitro in vivo correlation.

e) Describe about the physiological models.

f) Give detail note on loading dose and maintenance dose.

g) Discuss the steady state drug levels.

h) Write the Michaelis Menten equation.

i) Define clearance; discuss the factors affecting renal clearance or renal excretion.

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