B. Pharm. (CBCS Pattern) Semester-VI

BP604T - Biopharmaceutics and Pharmacokinetics

P. Pages : 3 **GUG/S/25/14140(S)**

Time : Three Hours * 4 7 5 0 * Max. Marks : 75

Notes : 1. All questions carry equal marks.
2. Assume suitable data wherever necessary.
3. Diagrams and Chemical equation should be given wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.
5. All questions are compulsory.

1. Multiple Choice Questions. **20x1 =20**

1) ---------- is concern with the release of drug from the dosage form and its subsequent absorption into systemic circulation.
   a) Clinical pharmacokinetic b) Pharmacodynamics
   c) Bio pharmaceutics d) All of the above

2) The absorption of drugs like Quaternary ammonium compounds are explained by
   a) Ion pair transport b) Convective transport
   c) Active transport d) Facilitated diffusion

3) Which drugs easily bind to AAG?
   a) Acidic drugs b) Lipophilic drug
   c) Basic drugs d) Neutral drug

4) Which one of these is correct Michelis – Menten equation?
   a) -dC/dt = Vmax C/Km + C b) dC/dt = Vmax C/Km + C
   c) -dC/dt = Vmax C/Km d) -dC/dt = Km + C / Vmax C

5) Which of the following is most likely to be associated with a high apparent volume of distribution?
   a) High hepatic extraction ratio
   b) Extensive binding to tissue constituents
   c) Extensive binding to plasma protein
   d) Penetration across the BBB barriers

6) What does Pharmacodynamics exclude
   a) Interaction of substance b) Localization of drug action
   c) Mechanism of drug action d) Excretion of substance

7) The process of engulfing of particulate material is called of
   a) Phagocytosis b) Active transport
   c) Pinocytosis d) Convective transport

8) Micronization of griseofulvin enabled the formulator to
   a) Add hydrophilic diluents b) Add surfactants
   c) Increase the dose d) Reduce the dose

9) In biopharmaceutics classification system for drugs, the Class-II drugs are
   a) High soluble, high permeable b) Low soluble, high permeable
   c) High soluble, low permeable d) Low soluble, low permeable

10) The extent of ionization of a weak electrolyte drug is dependent upon
   a) PH of the media and pKa of the drug
   b) Oil/water partition coefficient of the drug
   c) Particle size of the drug
   d) None.

11) p-amino hippuric acid is used to measure
   a) GFR b) Tubular reabsorption
   c) Tubular active secretion d) None of the above

12) The first order elimination rate constant can be computed from urine data by --------- methods
   a) Sigma-minus method b) Rate of excretion method
   c) Wagner-nelson method d) Both a and b methods

13) Noncompartmental approach, based on the ---------- theory.
   a) Diffusion b) Dissolution
   c) Statistical moments d) Surface renewal

14) When dosing interval $\tau = t1/2$, the $C_{max} = -----$
   a) $2\ C_0$ b) C_0
   c) X_M d) $2\ X_M$

15) The constants that represent a reversible transfer of drug between compartments are called as -
   a) Microconstants b) Macroconstants
   c) Hybrid first order constants d) Elimination constants

16) Time to achieve steady state drug levels is influenced by ----------
   a) Dosing interval b) Dose size
   c) Loading dose d) Number of dose

17) Which of the following is the Pharmacodynamic method of studying bioavailability?
   a) Acute pharmacologic response
   b) Plasma-level time studies
   c) Urinary excretion studies
   d) Stool excretion studies.

18) The primary pharmacokinetics parameter clearance can be calculated by --------
   a) $Cl_T = K_E V_d$ b) $Cl_T = F\ X_0 / AUC$
   c) $Cl_T = 0.693.\ V_d / t_{1/2}$ d) All of above

19) USP Apparatus 5 is ---------
   a) Flow through cell b) Paddle over disk
   c) Cylinder d) Reciprocating disk

20) The AUC expressed in
   a) Mcg. hours/ml b) Mcg.ml/hours
   c) Mcg/ml.hours d) Mcg/ml

2. Solve **any two.** **10x2 =20**

1) Discuss about dissolution test apparatus.

2) Explain in detail one compartment open model for I. V bolus administration.

3) List various factors affecting absorption and explain in detail pharmaceutical factors affecting absorption of drugs from GIT tract.

3. Solve **any seven** **7x5= 35**

1) What is pH partition hypothesis, give its limitations?

2) Explain active and passive diffusion with its differentiating point.

3) What is apparent volume of distribution? Explain factors affecting it.

4) Discuss the measurement of bioavailability.

5) Write short note on Sigma minus method.

6) What is non linear pharmacokinetics? Discuss various reasons of non – linearity.

7) Give clinical significance of loading dose and maintenance dose.

8) Explain the process of urinary excretion.

9) Define biotransformation. Explain any two phase-II reactions.

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