B. Pharm. III Year (CBCS Pattern) Sem-VI

BP604T : Biopharmaceutics and Pharmacokinetics

P. Pages : 3 **GUG/W/22/14140**

Time : Three Hours * 3 3 8 7 * Max. Marks : 75

Notes : 1. Diagrams and Chemical equation should be given wherever necessary.
2. Illustrate your answers wherever necessary with the help of neat sketches.
3. All questions are compulsory.

1. Multiple Choice Questions. **20**

1) Rate and extent of absorption of unchanged drug from its dosage form is known as
   a) Bioavailability b) Bioequivalence
   c) Elimination d) Distribution

2) Site I on human serum albumin is also called as
   a) Warfarin b) Digitoxin
   c) Tamoxifen d) Diazepam

3) Biotransformation of drugs is to render them
   a) Less ionized b) More pharmacologically active
   c) More lipid soluble d) Less lipid soluble

4) Which of the following drug bind to α1-globulin?
   a) Carotenoid b) Vitamin D
   c) Prednisone d) Ferrous ions

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

6) -------- is the study of what the body does to the drug.
   a) Therapeutics b) Pharmacokinetics
   c) Biopharmaceutics d) Pharmacodynamics

7) Which one of these is correct Michaelis – 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

8) Which of the following process is called as cell drinking?
   a) Phagocytosis b) Active transport
   c) Pinocytosis d) Convective transport

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

10) Rapid gastric emptying is advisable were
   a) The drugs dissolve slowly b) Food promotes drug dissolution
   c) A rapid onset of action is desired d) Drugs irritate gastric mucosa

11) System of enzymes in liver responsible for oxidative biotransformation.
   a) Microsomal enzymes
   b) Non microsomal enzymes
   c) Both a and b
   d) None of these

12) Which of the following compounds are used as agent to determine Glomerular Filtration Rate?
   a) Inulin
   b) Creatinine
   c) PAH
   d) Both a & b

13) AUC gives the measure of
   a) Extent of absorption
   b) Amount of drug
   c) Rate of absorption
   d) Both a and b

14) Which of the following dissolution apparatus is used to study dissolution of implants?
   a) Flow through cell
   b) Paddle over disk
   c) Rotating basket
   d) Reciprocating disk

15) 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

16) Which organs will comprise the central compartment in a two-compartment model?
   a) Muscles
   b) Skin
   c) Adipose
   d) Liver

17) When dosing interval $\tau < t_{1/2}$ the degree of accumulation is ------
   a) Less
   b) Greater
   c) No accumulation
   d) Can't say

18) When steady state blood drug levels achieved.
   a) When rate of drug input is less than rate of drug out put
   b) When rate of drug input is equal to rate of drug out put
   c) When rate of drug input is greater than rate of drug out put
   d) When 20% of absorbed dose is eliminated

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

20) The mathematical relationship between plasma drug concentration and pharmacological response is called as -------
   a) PK modelling
   b) PD modelling
   c) PK-PD modelling
   d) None of the above

2. Solve **any two.** **20**

a) Write in brief about factors affecting drug absorption.

b) Explain the method of residual for estimation of absorption rate constant.

c) Discuss detailly different bioavailability enhancement methods.

3. Solve **any seven.** **35**

a) Enlist the different mechanisms of drug absorption. And explain passive diffusion.

b) Write short note on pH partition hypothesis.

c) Define biotransformation. Explain any two phase – 1 reactions.

d) Define clearance, discuss the factors affecting renal clearance or renal excretion.

e) Describe about the physiological models.

f) Discuss the urinary excretion data studies.

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

h) Explain Michaelis Menten equation.

i) Define the terms **any five:**

a)	Bioequivalence	b)	Relative Bioavailability
c)	Pharmaceutical equivalence	d)	Volume of distribution
e)	IVIVC	f)	Absorption window

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