

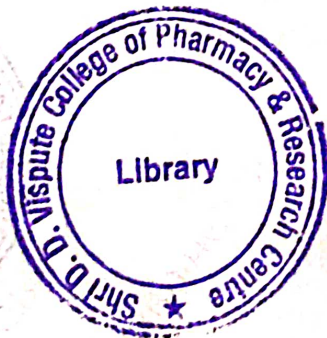
Duration: 3hrs

Note: All Questions are Compulsory.
 Figures to the right indicate full marks.
 Draw diagrams wherever required.
 Use of Scientific calculator is permitted

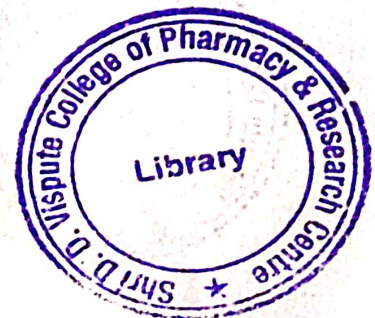
- Q. 1 Choose the appropriate option for following multiple choice based questions. 20
- 1 The movement of drug between one compartment and other like blood or extravascular tissue is referred to as 1
- Drug Disposition
 - Drug Distribution
 - Drug binding
 - Drug elimination
- 2 Absorption of drug through rectal route follows _____ mechanism 1
- Endocytosis
 - Facilitated diffusion
 - Passive diffusion
 - Pore transport
- 3 _____ involves the engulfment of small molecules or fluid 1
- Endocytosis
 - Pinocytosis
 - Phagocytosis
 - Exocytosis
- 4 _____ helps in transporting of inorganic ions across the membrane 1
- Ion channels
 - Voltage gated channels
 - Aqueous filled pores
 - Diffusion
- 5 Drugs absorbed by ion pair transport should 1
- Ionize at all pH
 - Have high partition coefficient
 - Depend on water flux for absorption
 - Require energy in the form of ATP
- 6 Apparent volume of distribution is _____ 1
- Plasma drug concentration X amount of drug in body
 - Plasma drug concentration / amount of drug in body
 - Amount of drug in the body X plasma drug concentration
 - Amount of drug in the body / plasma drug concentration



- 7 Transfer of drug from plasma to tissue depends on 1
a Blood perfusion rate of tissue
b Weight of tissue
c Size of tissue
d Gastric emptying rate
- 8 Glomerular Filtration is 1
a Non selective Multidirectional process
b Selective Unidirectional process
c Non selective Unidirectional process
d Selective Multidirectional process
- 9 Renal Clearance is expressed as 1
a Rate of urinary excretion/ plasma drug concentration
b Elimination rate/ Plasma drug concentration
c Plasma drug concentration / Rate of urinary excretion
d Plasma drug concentration / Elimination rate
- 10 _____ is Type III USP Dissolution test apparatus 1
a Rotating Paddle
b Flow through Cell
c Reciprocating cylinder
d Paddle over disc
- 11 What is the correct order of bioavailability of different dosage forms? 1
a Solutions > Emulsion > Capsules > Tablet > SR Tablet
b Solutions > Emulsion > Tablet > Capsules > SR Tablet
c Emulsion > Solutions > Tablet > Capsules > SR Tablet
d Emulsion > Solutions > Capsules > Tablet > SR Tablet
- 12 Bioavailability is 1
a The rate and extent of absorption of the unchanged drug from its dosage form
b The time of absorption of the drug from its dosage form
c The time of absorption of the unchanged drug from its dosage form
d The rate of absorption of the drug from its dosage form
- 13 Which route of drug administration shows 100% Bioavailability 1
a Oral
b IV
c Rectal
d Topical



- 14 Method of residual can be used to determine absorption rate constant when 1
a Ratio of K_a to K_E is greater than or equal to three
b Ratio of K_E to K_a is greater than three
c Ratio of K_a to K_E is less than three
d ratio of K_E to K_a is greater than five
- 15 In noncompartmental analysis, Mean residence time is equal to 1
a
b The area under the zero moment's curve/area under the first moment curve
c 1 / Area under the first-moment curve
d 1/ Area under the zero moment curve
- 16 The steady state concentration following IV infusion administration 1
determined by
a $C_{ss} = \text{Infusion Rate} - \text{Clearance}$
b $C_{ss} = \text{Clearance} / \text{Infusion Rate}$
c $C_{ss} = \text{Infusion Rate} \times \text{Clearance}$
d $C_{ss} = \text{Infusion Rate} / \text{Clearance}$
- 17 In multi compartment model transfer of drug from central compartment to 1
peripheral compartment assumed to follow
a Zero order kinetics
b First order Kinetics
c Second Order Kinetics
d Mixed order kinetics
- 18 is drug accumulation in the body relative to first dose 1
a Accumulation Factor
b Accumulation Index
c Apparent volume of distribution
d Fluctuation
- 19 Capacity limited kinetics is also called as 1
a Linear Pharmacokinetics
b Non linear pharmacokinetics
c Zero Order Kinetics
d First order Kinetics
- 20 In Michaelis- Menten equation When value of $K_m = C$ 1
a Rate of process is zero order
b Rate of process is first order
c Rate of Process is half the maximum rate
d Rate of process is double the maximum rate



2x10

Q.II Attempt any 2

- 1 An intravenous bolus dose of 125 mg of drug following one compartment kinetics give an extrapolated concentration at zero time of 25 mg/lit and elimination rate constant of 0.85 Hrs, calculate
- a) Volume of Distribution and Elimination half life
 - b) Total systemic clearance and AUC zero to infinity
 - c) Amount of drug eliminated from body after 6 hrs
 - d) Plasma Drug Concentration after 4 hours
 - e) Time required to eliminate 65% dose of drug.
- 2 Elaborate on fluctuations in plasma concentration of drug after multiple IV bolus injection. Explain the equation used for calculation of maximum and minimum plasma concentration.
- 3 Explain any four physiological barriers to distribution of drugs.

Q.III Attempt any 7

- 1 Enlist different dosage form related factors affecting absorption of drug. Explain any two.
- 2 Write a note on Facilitated diffusion
- 3 Enlist The physicochemical factors influencing the distribution of drugs. Explain any two.
- 4 Explain the effect of glomerular filtration on excretion of drugs.
- 5 Write a note on IVIVC.
- 6 Enlist the methods for measurement of bioavailability. Explain any one.
- 7 Explain determination of absorption rate constant by method of residual.
- 8 What are the causes of non-linearity in drug absorption and distribution?
- 9 Outline the factors affecting Drug Protein Binding and explain any one of them.

