Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF PHARMACY

B. Pharm. Summer 2022 - 23 Examination

Semester: 6 **Date: 20/04/2023**
Subject Code: BP604T **Time: 10:00am to 1:00pm**
Subject Name: Biopharmaceutics and Pharmacokinetics **Total Marks: 75**

Instructions:
1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

Q.1 Multiple Choice Questions (MCQs) (1 Mark Each) **(20)**

1. Maximum Absorbable dose depends on
   a) Volume of GI fluid b) Ko/w
   c) pKa d) All of the above
2. It is true for Active Transport
   a) It doesn't requires energy b) It operates downhill
   c) It can be blocked d) All of the above
3. Moderately weak acidic drugs absorbs from
   a) Stomach b) Intestine
   c) Both A & B d) Entire GIT
4. This variable does not affect Dissolution of a tablet
   a) Amount of Binder b) Amount of disintegrant
   c) Turret Speed of compression machine d) Hardness of tablet
5. Apparent Volume of distribution will be highest for the drug with _____ % plasma protein binding
   a) 10 b) 45
   c) 50 d) 60
6. A drug with molecular weight of 750 is predominantly excreted in
   a) Urine b) Sweat
   c) Bile d) Milk
7. _____ is excreted unchanged in urine by glomerular filtration only and used to assess renal function.
   a) Creatinine b) Albumin
   c) Glucose d) Urea
8. For highly lipophilic metabolically stable molecule first step in disposition will be
   a) Accumulation b) Phase I Metabolism
   c) Phase II Metabolism d) Excretion
9. Bioavailability of Drug A by oral route and i.v. route is 80% and 100% respectively. Calculate relative Bioavailability.
   a) 0.8 b) 80 %
   c) Both A & B d) None of the above
10. Paddle over disc is used for the evaluation of
    a) Pellets b) Floating Tablets
    c) CR tablets d) Trans-dermal patches
11. For this drug bioequivalence is self evident
    a) CR tablet b) CR Implant
    c) Antiseptic cream d) All of the above
12. BCS based Biowaiver can be approved to
    a) The drug belongs to BCS class I b) The drug belongs to BCS class II
    c) The drug belongs to BCS class III d) The drug belongs to BCS class IV
13. In this model compartments are joined to each other in a series
    a) Caternary model b) Physiological model
    c) Mammilary Model d) All of the above

14. When K_E is constant and Ka is larger
    a) C max is unaffected
    b) AUC is unaffected
    c) t_{max} is shorter
    d) Both A & B
15. In two compartment open model K_E will follow _____ order kinetics.
    a) Zero
    b) First
    c) A and or B
    d) Depends on route of administration
16. In feathering method when $K_E/K_a = 6$, the slope of terminal line gives
    a) K_a
    b) K_e
    c) K_E
    d) Km
17. For a highly water soluble drug brain will be in
    a) Central compartment
    b) Peripheral compartment
    c) Depends on dose
    d) None of the above
18. In multicompartment model, all rate processes involving passage of drug between two compartments follow
    a) Zero Order Kinetic
    b) First order kinetic
    c) Mixed order kinetic
    d) Non linear kinetics
19. If active tubular secretion follows non linear kinetics, saturation results in
    a) Longer half life
    b) High clearance
    c) Faster Ka
    d) Both A & B
20. Michaelis constant is
    a) Theoretical maximum rate of process
    b) Can be determined from the slope of dc/dt vs C
    c) A concentration at which dc/dt = Vmax
    d) A concentration at which dc/dt = Vmax/2

Q.2 Long Answers (any 2 out of 3) (10 Mark Each) **(20)**

1. A. Explain Carrier mediated transport.
   B. Discuss factors affecting renal clearance.
2. A. What is In Vitro bio equivalence study?
   B. Write a note on wagner nelson method.
3. What are the causes of non linearity?
   Write the methods used to determine Km and Vmax.

Q.3 Short Answers (any 7 out of 9) (5 Mark Each) **(35)**

1. Write a note on Passive diffusion and explain importance of sink condition in it.
2. Explain how pharmaceutical ingredients (excipients) affect dissolution and subsequent absorption.
3. Discuss physiological barriers to distribution of drugs.
4. Explain chemical pathways of bio transformation briefly.
5. Dicuss IVIVC and its importance.
6. Enlist pharmacokinetic methods to determine Bio Availability and explain any one in detail.
7. Explain method of residual to determine absorption rate constant.
8. Derive the pharmacokinetic parameters for I.V. bolus administration.
9. What is delayed distribution model? Explain in brief.