Exam Date & Time: 25-Jul-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal College of Pharmaceutical Sciences, Manipal
BPharm Semester VI - End Semester Examination, June 2022

Biopharmaceutics and Pharmacokinetics [PCE-BP604T-S1]

Marks: 75 **Duration: 180 mins.**

Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

Multiple Choice Questions

1) Rapid gastric emptying is advisable where

1) A delayed onset of action is required for a drug
2) Dissolution of drug occurs in the intestine
3) Drugs stable in gastric fluid
4) Drug is best absorbed from the stomach

(1)

2) The carrier mediated transport system shows ____

1) First order kinetics
2) Zero order kinetics
3) Mixed order kinetics
4) None of the above

(1)

3) The most abundant protein with large binding capacity of drugs is __

1) Albumin
2) α1-acid glycoprotein
3) Lipoproteins
4) Globulins

(1)

4) BCS Class III drugs will have _____

1) high solubility, high permeability
2) high solubility, low permeability
3) low solubility, low permeability
4) low solubility, high permeability

(1)

5) The following statement is NOT true

1) Hydrates have less solubility than anhydrous form
2) Solvates have lesser solubility than non-solvates.
3) Solid solutions shows higher dissolution
4) Amorphous form is more soluble than crystalline

(1)

6) The excretion rate of a drug is 95 ml/min. It indicates _____

1) Complete excretion of the drug 2) Reabsorption of the drug 3) Active secretion of the drug 4) All of the above (1)

7) Noncompartmental analysis is mainly explained by _____

1) Catenary theory 2) Physiologic theory 3) Statistical moments theory 4) Mammillary theory (1)

8) Conventional oral drug administration mainly follows _____

1) Zero order kinetics 2) First order kinetics 3) Second order kinetics 4) Mixed order kinetics (1)

9) All peripheral compartments are NOT directly connected to the central compartment in _____

1) Catenary model 2) Mammillary model 3) Physiologic model 4) Noncompartmental analysis (1)

10) Which one of the following requires exhaustive experimentation and data collection?

1) Catenary model 2) Mammillary model 3) Physiologic model 4) All of the above (1)

11) Which of the following is an empirical approach?

1) Compartment model 2) Physiologic model 3) Both of the above 4) All of the above (1)

12) Drug levels in central compartment of two compartment open model by IV bolus administration _____

1) Increase biexponentially 2) Decrease biexponentially 3) Increase till maximum and then decrease 4) Decrease till minimum and then increase (1)

13) Drug levels in peripheral compartment of two compartment open model by IV bolus administration _____

1) Decrease continuously 2) Increase continuously 3) Increase till maximum and then decrease 4) Decrease till minimum and then (1)

increase

14) Steady state drug levels in multiple dosing can be immediately attained by administering _____ (1)

1) Loading dose 2) Maintenance dose 3) Total dose 4) None of the above

15) Rate in the change of drug concentration in nonlinear pharmacokinetics equals to half of maximum value when _____ (1)

1) Km value is very high than concentration of drug 2) Km value is very less than concentration of drug 3) Km value and concentration of drug are equal 4) All of the above

16) Poor solubility of the drug is mainly a cause of nonlinearity for _____ (1)

1) Drug absorption 2) Drug distribution 3) Drug metabolism 4) Drug excretion

17) Linear pharmacokinetics mainly follows: (1)

1) Zero order kinetics 2) First order kinetics 3) Capacity limited kinetics 4) Mixed order kinetics

18) Renal clearance of the drug _____ when tubular secretion of the drug becomes capacity limited (1)

1) Increases 2) Decreases 3) Remain constant 4) None of the above

19) Saturation of tissue binding of drug _____ apparent volume of distribution (1)

1) Increases 2) Decreases 3) Remain constant 4) None of the above

20) Presystemic metabolism of the drug is mainly a cause of nonlinearity in _____ (1)

1) Drug absorption 2) Drug distribution 3) Drug excretion 4) None of the above

II Long Answers

Answer all the questions.

Long answers

1) Enlist and explain any THREE physicochemical properties of drug affecting its absorption with ONE example each. (10)

2) Explain the estimation of various pharmacokinetic parameters of drug in blood when administered orally assuming that it follows one compartment open model. (10)

III Short Answers

Answer all the questions.

Short answers

1) Explain any THREE study designs for bioequivalence study. (5)

2) Explain how the tissue permeability of the drugs and Organ/tissue perfusion rate affect drug distribution. (5)

3) Give reason with example a) Probenecid is known as uricosuric agent. b) Phase II biotransformation reactions are known as real drug detoxication pathways. (5)

4) Discuss the application of method of residuals in two compartment open model IV bolus administration of the drug. (5)

5) Discuss the multiple dosing of drugs by oral and IV routes of administration using suitable diagrams. (5)

6) Explain the application of Michaelis Menton equation to explain nonlinear pharmacokinetics. (5)

7) Explain the causes of nonlinearity from drug elimination. (5)

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