

University of Mumbai
Second Year B. Pharm. (Sem -IV) CBCS
Physical Pharmacy - II
Semester Examination FH2022

Examination date: 05/05/2022

Max Marks: 80

Duration: 3Hrs

Q. 1 Choose appropriate option for following multiple choice based questions.20/10

- 1 A drug suspension decomposes by zero-order kinetics with a rate constant of 5 mg/mL month. If the initial concentration is 100 mg/mL, what is the shelf life?
 - a 2 Months
 - b 3 Months
 - c 4 Months
 - d 5 Months

- 2 Which of the following mechanism is most frequently responsible for chemical degradation?
 - a Hydrolysis
 - b Reduction
 - c Photolysis
 - d Decarboxylation

- 3 The half-life of a first order reaction is
 - a $0.693/K$
 - b $1/K$
 - c $2.303/K$
 - d $\log K$

- 4 For any chemical reaction, the molecularity is always -----than the order.
 - a Higher
 - b Lower
 - c Equal
 - d May be lower or equal.

- 5 The order of reaction followed during hydrolysis of ethyl acetate in excess of water is
 - a Pseudo first order reaction
 - b Pseudo zero order reaction
 - c First order reaction
 - d Zero order reaction

- 6 The dissolution rate constant may be expressed in common notation as
- a D/h
 - b $D/h * S$
 - c $D* h / S$
 - d $D * S$
- 7 Which one of the following creates more difficulties regarding dissolution?
- a amorphous form
 - b anhydrous form
 - b crystalline form
 - d metastable form
- 8 Which of the following is the critical step for absorption of drug from a tablet?
- a Disintegration
 - b Diffusion
 - c Dissolution
 - d Both disintegration and diffusion
- 9 Which category of drug is evaluated for Dissolution?
- a Highly diffusible
 - b Ionizable
 - c Poorly water soluble
 - d Water soluble
- 10 Parameters estimated for method of analysis of Complexation is
- a Stability Constant of Complex
 - b Intermolecular Forces
 - c Coordination Number
 - d Ligand binding
- 11 The Complexation of iodine by potassium iodide can be determined by
- a Distribution Method
 - b Solubility Method
 - c pH titration Method
 - d Infrared spectroscopy Method
- 12 Suspended particles become flocculated in a suspension because:
- a Attractive forces between particles are appreciable
 - b particles are packed closely
 - c Repulsive forces between particles are appreciable
 - d vehicle rejects the particles

- 13 For an ideal suspension, the sedimentation volume should be _____
- a Equal to one
 - b Less than one
 - c More than one
 - d Zero
- 14 The HLB range of an of an emulsifier employed in the preparation of w/o emulsion is:
- a 3 to 8
 - b 9 to 12
 - c 13 to 15
 - d more than 15
- 15 Wettability of powder can be ascertained by observing _____
- a Particle size of the large particles
 - b Angle of contact between particle surface and liquid
 - c Density of particle
 - d Specific surface area of particle
- 16 When a beam of light pass through the colloid the light get scattered because of _____
- a Donnan membrane effect
 - b Faraday tyndall effect
 - c Brownian movement
 - d Diffusion
- 17 If the affinity between the dispersion medium and dispersed phase is high then it is _____ colloid
- a Gold
 - b Lyophobic
 - c Lyophilic
 - d Dissociation
- 18 What helps in transporting of inorganic ions across the membrane
- a Aqueous filled pores
 - b Diffusion
 - c Voltage gated channels
 - d Ion channels

19 Gastrointestinal route is an example of which of the major drug delivery routes

- a Enteral
- b Parenteral
- c Topical
- d Buccal

20 The cell membrane is _____

- a Semipermeable
- b Permeable
- c Impermeable
- d Permeable only to gases

Q.2A Answer any one question

12/6

A) Derive zero order reaction equation and enlist methods for determining order of reaction and explain any two methods in-detail.

B) Define diffusion. Give Fick's First and second law of diffusion.

Q.2B Answer any FOUR questions

48/24

- 1. a) Describe the experimental method for studying protein binding. 6M
 - b) Classify organic molecular Complex with one example. 6M
 - 2. a) Explain interfacial properties of suspended particles with emphasis on DLVO theory. 6M
 - b) Enlist the theories of emulsification and explain any one in-detail. 6M
 - 3. a) Explain in-brief various types of colloidal systems. 6M
 - b) Explain the stability of colloids with emphasis on *Schultz-Hardy rule*. 6M
 - 4. a) Enlist physicochemical factors for drug absorption and explain any three in detail. 6M
 - b) Write different classes of drugs based on the BCS and give examples of each class. 6M
 - 5. a) Explain the application of accelerated stability studies. 6M
 - b) Explain the factors influencing the dissolution of the drug. 6M
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