

INSTITUTE OF TEACHING AND RESEARCH IN AYURVEDA
[INSTITUTE OF NATIONAL IMPORTANCE]

MINISTRY OF AYUSH, GOVERNMENT OF INDIA

B. PHARM. (AYU.) II YEAR

PHYSICAL PHARMACY AND PHARMACEUTICS

Question Bank

| S.N. | QUESTIONS | MARKS |
|-----------|--|-------|
| | SECTION A | |
| 1. | Chemical kinetics | |
| | Define chemical kinetics and its applications ? | 10 |
| | Write influence of temperature and other factors on reaction rates. | 10 |
| | What do you understand by zero order, first order and second order reactions ? | 10 |
| | What is the difference between half life and shelf life and how to estimate it ? | 10 |
| | Explain importance of rate of reaction in Pharmacy. | 10 |
| | Describe the factors which govern the rate of a chemical reaction. | 10 |
| | Explain why suspensions mostly follow zero order reaction. | 5 |
| | Differentiate between zero and first order reaction with suitable examples. | 5 |
| | Methods of determination of order | 5 |
| | What is the difference between half life and shelf life | 5 |
| | Write short note on - apparent zero order reaction , | 2 |
| | Molecularity of reaction | 2 |
| | Order of reaction | 2 |

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| Self life | 2 |
| Half life | 2 |
| Chemical kinetics | 2 |
| 2. Thermodynamics | |
| Explain first and second law of thermodynamics and derive its equation. | 10 |
| Narrate isothermal and adiabatic process in thermodynamics. | 10 |
| Define adsorption isotherm & discuss types of isotherm. | 10 |
| Explain second law of thermodynamics. | 10 |
| Write short note on | |
| enthalpy and entropy | 5 |
| Define first law of Thermodynamics. | 5 |
| Work of expansion | 5 |
| Enthalpy | 2 |
| Entropy | 2 |
| 3. Thermochemistry | |
| Explain the term thermochemistry and differentiate exothermic and endothermic reactions? | 10 |
| Explain applications of heat of combustion in detail ? | 10 |
| Define adsorption isotherm. Draw various types of adsorption isotherm and explain their behaviour. | 10 |
| Write short note on- | |
| Theory of thermochemistry | 5 |
| Kirchoff s equation | 5 |

Enthalpy of reaction 5

4. Physical properties of matter

Give a detail account on physical properties of matters ? 10

Why physical properties of matter is important topic in physical pharmacy ? 10

What is the difference between dielectric constant and dipole moment ? 10

Write a short notes on -

Refractive index 5

Optical activities 5

Dielectric constant 2

dipole moment 2

sublimation 2

5. Phase equilibria and solubility

What is the effect of temperature and pressure on solubility ? 10

Describe the types of solution and effect of temprature and pressure on solubility. 10

Explain methods of determination of boiling point and freezing point ? 10

Discuss types of solution in details. 10

Write short notes on - phase rule 5

Types of solution 5

Immiscible liquids 5

Narrate various concentration expressions. 5

Osmosis and osmotic pressure. 5

Concentration units 2

SECTION B

6. Rheology

Discuss concepts & various factors influencing the viscosity ? 10

Explain non-newtonian type of flow with rheograms, mechanisms and suitable examples. 10

What is the difference between Newtonian and non Newtonian flow ? 5

Write short note on –

Ostwald viscometer 5

cup and bob viscometer 5

Pseudoplastic flow and dialatant flow 5

Define thixotropy. Draw a thixotropic curve for a plastic flow . 5

Thixotropy. 5

Rheology 2

Plastic flow 2

Name of any two Thixotropic agents 2

7. Colloid

What is the colloids ? discuss their classification with suitable examples ? 10

What are lyophobic colloids? Describe various methods for the preparation of Lyophobic colloids. 10

What do you under by stability of colloidal dispersion ? 10

Discuss methods of purification of colloidal dispersions ? 10

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| Write short note on – | |
| optical properties of colloids | 5 |
| CMC & Kraft point | 5 |
| Discuss in detail kinetic properties of colloidal dispersions. | 5 |
| characteristics of dispersion phase | 5 |
| electrical properties of colloids | |
| Brownian motion | 2 |
| Define intrinsic viscosity. What are its application? | 2 |
| Define lyophobic colloids. Give two examples. | 2 |
| Define lyophilic colloids. Give two examples. | 2 |

8. Interfacial phenomena

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| Discuss the methods of determination of surface tension ? | 10 |
| Deduce an equation for the determination of interfacial tension using DuNouy method. | 10 |
| Explain in detail the term interfacial tension their factors affecting ? | 10 |
| Discuss the methods of determination of interfacial tension ? | 10 |
| Write short note on – | |
| Surface tension and interfacial tension | 5 |
| spreading coefficient | 5 |
| Surface active agents & HLB | 5 |
| Describe the process of detergency. | 5 |
| Methods to determine surface tension of liquids. | 5 |

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| Application of surface active agents | 5 |
| Difference between physical and chemical adsorption | 5 |
| Interface | 2 |
| Surface tension | 2 |
| Interfacial tension | 2 |
| HLB | 2 |
| Surface free energy | 2 |
| adsorption | 2 |
| adsorbant | 2 |
| adsorbate | 2 |
| Zeta potential | 2 |

9. Micromeritics

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| Define micromeritics and explain their application in pharmacy. | 10 |
| Define the powder and explain their characteristics in detail ? | 10 |
| Describe any two method to determine the weight distribution of particals in a powder. | 10 |
| Explain in detail the methods of particle size determination ? | 10 |
| Narrate methods for particle size determination | 10 |
| Explain the derived properties of powders. | 10 |
| Write the principle and method involve in the determination of partical size in a powder using andreasen apparatus. | 10 |
| Wite short note on - | |

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|---|---|
| Derived properties of powder | 5 |
| Angle of repose | 5 |
| Bulk density & tap density. | 5 |
| Particle and powder characteristics | 5 |
| List different types of densities of powder granules. Write experimental method for the determination of any one of them. | 5 |
| Describe andreasen pipette method of analysing the partial size. | 5 |
| What are methods of particle size determination ? | 5 |
| Eutectic mixture. | 2 |
| Bulk density | 2 |
| True density | 2 |
| micromeritics | 2 |
| porosity | 2 |
| Angle of repose | 2 |