

PHARMACEUTICS-II (Physical Pharmacy - I)

PH. 3.1 THEORY

3 hours/week

UNIT -I

1. **Matter, Properties of Matter** : State of matter, change in the state of matter, latent heats and vapour pressure, sublimation, critical point, eutectic mixtures, gases, aerosols, inhalers, relative humidity, liquid complexes, liquid crystals, glassy state, solids-crystalline, amorphous and polymorphism.

UNIT -II

2. **Thermodynamics**: First, second and third laws, Zeroth law, absolute temperature scale, thermochemical equations, phase equilibria and phase rule.

UNIT -III

3. **Solutions** : Ideal and real solutions, solution of gases in liquids, colligative properties, partition coefficient, conductance and its measurement. Debye Huckel theory.
4. **Buffers**: Buffer equations and buffer capacity, buffers in pharmaceutical systems, preparation, buffered isotonic solutions, measurements of tonicity, calculations and methods of adjusting isotonicity.

UNIT -IV

5. **Surface and Interfacial Phenomenon** : Liquid interface, surface and interfacial tensions, surface free energy, measurement of surface and interfacial tensions, spreading coefficient, adsorption at liquid interfaces, surface active agents, HLB classification, solubilization, detergency, adsorption at solid interfaces, solid-gas and solid-liquid interfaces, complex films, electrical properties.
6. **Adsorption** : Freudlich and Gibbs adsorption isotherms, Langmuir theory of adsorption, BET equation.