

SARDAR PATEL UNIVERSITY
Programme: B.Sc
Semester: III
Syllabus with effect from: June-2012

Paper Code: US03CBCH02	Total Credit: 3
Title of Paper: Biophysical & Environmental Biochemistry	

Unit	Description in detail	Weightage (%)
I	<p>Water: Structure of water, Distribution of body water, Normal water balance and its regulatory mechanism, Abnormal water (dehydration & over hydration), Acid-base balance in normal health. Acid base imbalance. Buffer: definition, mechanism of action. Mechanism of regulation of pH, physiological buffer system, (bicarbonate & phosphate). H.H. equation and its examples to find pH and pKa.</p>	25%
II	<p>Colloids, Viscosity, Surface Tension Osmosis, Diffusion and Donnan: Membrane Equilibrium: Colloid Definition and Classification of Colloids, Properties of Colloids- Brownian movement, Tyndal effect, Dialysis, Ageing, coagulation, Electric properties. Biological significance of colloids. Definition and significance of: Viscosity, Surface tension, Osmosis, Diffusion and Donnan Membrane Equilibrium.</p>	25%
III	<p>Separation and Purification Technique - I: Centrifuge technique: Basic principle & application Factors affecting sedimentation. Desktop centrifuge Rotors: Vertical tube rotor, fixed angle rotor, Swinging bucket rotor. Electrophoresis: Basic Principle, Factor affecting electrophoresis mobility Basic technique and application of electrophoresis Free electrophoresis & Zone Electrophoresis Type of supporting medium Electrophoresis apparatus (Power pack and electrophoresis unit in General) General technique of paper electrophoresis</p>	25%
IV	<p>Environmental Biochemistry: Sources biochemical effects and remedy of heavy metal on human body Lead, mercury, arsenic, cyanide</p>	25%

Basic Text & Reference Books:

- Text book of Medical Biochemistry by Rana Shinde and Chattergy. (CH - 1)
- Lehninger principles of Biochemistry by David L. Nelson and Michael M.Cox, CBS Publisher (4th Edition). (CH - 1)
- Outline of biochemistry Conn & Stump. (CH - 1)
- Biophysical Chemistry by Upadhyay, Upadhyay & Nath. (CH - 2)
- Environmental chemistry by B K Sharma. (CH - 4)
- Environmental chemistry by M M Chattergy. (CH - 4)

