

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: B.Sc**  
**Semester: IV**  
**Syllabus with Effect from: November - 2012**

<b>Paper Code: US04EBCH01</b>	<b>Total Credit: 2</b>
<b>Title Of Paper: Fundamentals of Biochemistry &amp; Bioinstrumentation</b>	

Unit	Description in detail	Weightage (%)
I	<p><b>Basic Concepts of Metabolism.</b>  Fundamentals of biochemistry;  Living organisms are never at equilibrium with their surroundings.  Organisms transform energy and matter from their surroundings  Basic concepts of metabolism-Anabolism, Catabolism, Role of acetyl co-A as the central molecule in metabolism  Energy coupling reaction in biology  Central role of ATP in metabolism  Enzyme promote sequence of chemical reactions  Metabolism is regulated to achieve balance and economy-feed back mechanism.</p>	25%
II	<p><b>Biomolecules.</b>  Structure of nitrogen bases and sugars  Structure of nucleosides and nucleotides-heterocyclic structures of purines and pyrimidines, substitution of functional groups, double and single bonds.  Forms of DNA  Structure and types of RNA  DNA as a genetic material  a) Hershey and chase experiment,  b) Avery- Macleod- McCarty experiment  Fatty acids-Distribution in nature, saturated, unsaturated and branched chain fatty acids: physical and chemical properties of fatty acids.</p>	25%
III	<p><b>Enzymes</b>  definition- enzyme, coenzyme, cofactor, holoenzyme, apoenzyme  Classification of enzyme with examples.  Mechanism of enzyme action.  M.m. equation.  Brief introduction of iso enzyme allosteric enzyme, and zymogen.</p>	25%
IV	<p><b>Instrumentation</b>  <b>Photometric Techniques</b>  Light electromagnetic spectrum, The laws of light absorption-Beer's,Lambert's law  Principle, Instrumentation and Application of: Colorimeter, Visible and UV Spectrophotometer.  Electrophoresis  Basic Principle  Factor affection electrophoresis mobility  Type of electrophoresis- 1)Free electrophoresis 2)Zone electrophoresis  The supporting medium  Electrophoresis apparatus (Power pack and electrophoresis unit in general)  General technique of zone electrophoresis: paper electrophoresis</p>	25%

