

**SARDAR PATEL UNIVERSITY**  
**Programme: BSC (MICROBIOLOGY)**  
**Semester: VI**  
**Syllabus with effect from: November 2013**

<b>Paper Code:</b> US06CMIC01	<b>Total Credit: 3</b>
<b>Title Of Paper:</b> Molecular Genetics	

Unit	Description in detail	Weighting (%)
<b>1</b>	Types of mutations. Evidences of spontaneous nature of mutation: <ul style="list-style-type: none"> <li>• Fluctuation test</li> <li>• Replica plating technique</li> </ul> Methods of isolation of: Auxotrophic mutants, <ul style="list-style-type: none"> <li>• Drug resistant mutants &amp;</li> <li>• Phage resistant mutants.</li> </ul> Mode of action of: UV rays, Nitrous acid, 5 - Bromo uracil, 2 - Amino purine, Hydroxyl amine and EMS	
<b>2</b>	DNA repair mechanisms: <ul style="list-style-type: none"> <li>• Photo reactivation, Excision repair, Mismatch repair and SOS repair</li> </ul> Mutagenicity and carcinogenicity test - AMES test Types of recombination Holiday model of recombination	
<b>3</b>	Transformation - Discovery, Natural transformation in Streptococcus pneumoniae and Haemophilus influenzae Transduction - Discovery; Generalized and Specialized transduction Transposable elements - structure and types Mechanism of TN-3 transposition	
<b>4</b>	Importance of bacteria as genetic tool Bacterial plasmids: Fertility factor Resistance factor Col plasmid Other types of plasmids Conjugation - Discovery, formation of mating pairs Interrupted mating for mapping of the genome	

**Basic Text & Reference Books:**

- General Microbiology - Stanier, R. Y.
- Principles of Microbiology - Ronald M. Atlas
- Microbiology - Prescott, L. M.
- Microbiology Vol. I & II - Powar & Daginawala
- Microbiology - Pelczar, Chan and Krieg
- General Microbiology - A.H.Patel

