

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Biomedical Science)
Semester: III
Syllabus with Effect from: June - 2014

Paper Code: PT03EBMC02	Total Credit: 4
Title of Paper: Methods in Biology	

Unit	Description in Detail	Weightage (%)
I	Molecular Biology and R-DNA Methods: Different separation techniques, expression of recombinant proteins using bacterial, animal and plant vectors, DNA sequencing methods, strategies for genome sequencing, isolation, separation and analysis of carbohydrate and lipid molecules; RFLP, RAPD and AFLP techniques	25%
II	Histochemical and Immunotechniques: Antibody generation, detection of molecules using ELISA, RIA, western blot, immunoprecipitation, flow cytometry and immunofluorescence microscopy, detection of molecules in living cells, in situ localization by techniques such as FISH and GISH	25%
III	Microscopic techniques: Visualization of cells and subcellular components by light microscopy, resolving powers of different microscopes, microscopy of living cells, scanning and transmission microscopes, different fixation and staining techniques for EM, freeze-etch and freeze-fracture methods for EM, image processing methods in microscopy.	25%
IV	Electrophysiological techniques: Single neuron recording, patch-clamp recording, ECG, Brain activity recording, lesion and stimulation of brain, pharmacological testing, PET, MRI, fMRI, CAT.	25%

Basic Text & Reference Books:-

- Wilson K., Walker J., Principles and Techniques of Biochemistry and Molecular Biology
- Nelson D. L., Cox M. M., Lehninger Principles of Biochemistry, W. H. Freeman; 5th edition

