Section B
BIOCHEMISTRY

Advanced Molecular Biology: Structural aspects of genetic material; replication and transcription; post-transcriptional processing; translation; regulation of gene expression in prokaryotes and eukaryotes; DNA repair.

Proteins and Proteomics: Protein sequencing; dihydryl angles and Ramachandran plot; hydrophobicity plots; stokes radius; diffusion coefficient and intrinsic viscosity of proteins; protein domains and motifs; protein interaction mapping; protein arrays and protein chips.

Advanced Enzymology: Nature and kinetics of enzyme catalyzed reactions; kinetics and mechanisms of multi-substrate reactions; mechanism of enzyme action. Enzyme regulation and enzyme inhibition; enzyme immobilization.

Metabolism and its Integration: Carbohydrate metabolism; lipid metabolism; amino acid metabolism; nucleic acid metabolism; bioenergetics.

Molecular Cell Biology: Cell communication; neurobiology and neurochemistry; cell cycle and programmed cell death; cell differentiation and cancer.

Biotechnology: Construction of recombinant DNA; applications of recombinant DNA technology; gene transfer in yeast, plant and mammalians cells; secondary metabolites.

Plant Biochemistry: Plant cell wall and cell membrane; photosynthesis; nitrogen fixation.

Molecular Immunology: Humoral and cell medicated immune responses; complement, MHC and its relation to transplantation immunity; hypersensitivity; autoimmunity and immune deficiencies; AIDS.

Bioinformatics and Research Methodology: Research methodology and technical writing; database searches; analysis of nucleic acid and protein sequences.

Molecular Genetics: Chromosome mapping; classical, biochemical and developmental genetics; bacterial, viral and yeast genetics.