

**Mother Teresa Women's University
Kodaikanal - 624102**

Common Paper

Recent Trends in Biotechnology

UNIT I

Cell membrane and types: Unit membrane, sandwich model. Membrane transport. Cytoskeleton, Amyloid fibers. Cell mobility: Endocytosis and Exocytosis. Proton pumps. Molecular motors: Actin and microtubules based motor proteins. Structure and function of cell organelles: mitochondria, chloroplast, golgi apparatus, lysosomes, endoplasmic reticulum, ribosomes, peroxisomes and Nucleus.

UNIT II

Microbial Anatomy – Prokaryotic Cell structure & Organization, Cell membrane, Cytoplasmic and Inclusion bodies, Cell wall, Capsule, Slime layers, S layers, Fili & Fimbriae, Flagella & Motility. Bacterial endospores. Definition of bioremediation. Bioreactors in bioremediation. Types of bioremediation – natural, solid phase and slurry phase bioremediation.

UNIT III

Overview of the immune system. Milestones of Immunology. Immune system: Anatomy of lympho reticular system. Primary Lymphoid organs. Bone marrow and Thymus. Secondary lymphoid tissues – Spleen, Lymphocytes, and associated lymph tissues. Immuno reactive cells. T and B lymphocytes, macrophages, granulocytes and natural killer cells(NK cells).

UNIT IV

Introduction of Genetic Engineering- Molecular tools of Genetic Engineering- Restriction Endonuclease, DNA ligase, Alkaline phosphatase, DNA modifying enzymes. Techniques of enzyme immobilization and their applications- medical, food, leather, textile and paper industries.

UNIT V

Genetic manipulations for nitrogen fixation – nitrogenase genes, hydrogenase genes, nodulation genes, biocontrol of plant pathogens, Biofertilizers- symbiotic and asymbiotic nitrogen fixers, organic fertilizers (animal dung, urine, crop and oil cakes), Facilities for animal cell culture- infrastructure, equipment, culture vessels. Gene knock out & mice model for human genetic disorder.

UNIT –V(a)

Plagiarism – Definition – History of Plagiarism – Key to avoid Plagiarism – Different forms of Plagiarism – Intentional – Unintentional – Non – Attribution – accidental – Common Plagiarism Problems – Six ways to avoid plagiarism in Research Report – Paraphrase – cite – Quoting – Citing Quotes – Citing one's own material – Referencing – Plagiarism checker services – Softwares – write check – VAILL Tutor Tool – Plagiarism Test – Pen and Paper plagiarism Knowledge Test – etc. UGC Public notice dated 01.09.2017

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