Paper -II (204102): Physiology , Biochemistry, Biotechnology and CytoGenetics

Physiology

Plant-Water Interaction **:**Structure and Properties of Water, Polarity of Water
Osmosis, Plasmolysis and Imbibition, Water Potential.
Water Transport – Ascent of Sap, Transpiration
Enzymes
Nature of Enzymes, Classification, Mode of Action, Enzyme Specification and Inhibition.

Biocheistry

Classification, Structure and Functions of Carbohydrates, Proteins and Lipids

Biotechnology

DNA – Structure, Replication and Recombination
DNA Structure and Replication (Prokaryotic and Eukaryotic),Recombination
r-DNA Technology
Cloning Vectors

Cytogenetics

Prokaryotic and Eukaryotic Cell
Ultrastructure and Functions of the Cell Wall, Plasma Membrane
Ultrastructure and functions of the cell organelles: Mitochondrion and Chloroplast.
Ultrastructure of the Nucleus.and Chromosome
Cell Division-Mitosis
Mendalian Principles – Mendel's Laws
Intralocus (Allelic) Gene Interaction.
Intralocus (Non-Allelic) Gene Interaction- Non-Epistatic Interaction.
Epistatic Interaction- Recessive Epistasis, Duplicate Recessive Epistasis, Dominant Epistasis and Duplicate Dominant Epistasis.
Sex determination
Chromosomal Sex Determination:
Heterogametic Male- XX-XY(Man,Drosophila, Melandrium), XX-XO(Grass-hopper, Dioscorea and Vallisneria);
Heterogametic Female- ZW-ZZ(Fowl), ZO-ZZ(Butterflies);
Haplodiploidy in Hymenoptera, Gynandromorphs: