Syllabus

PANJAB UNIVERSITY, CHANDIGARH

ORGANIC CHEMISTRY

SEMESTER–VI

Note :
1. *Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabus.*
2. *The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.*
3. *Compulsory question carries SIX marks and remaining all questions carry FOUR marks each.*

UNIT–I (8 Hrs.)

Amino Acids, Peptides, Proteins and Nucleic Acids

Classification, structure and stereochemistry of amino acids. Acid-base behaviour, isoelectric point and electrophoresis. Preparation and reactions of α-amino acids.

Structure and nomenclature of peptides and proteins. Classification of proteins. Peptide structure determination, end group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid-phase peptide synthesis. Structures of peptides and proteins. Levels of protein structure. Protein denaturation/renaturation.

Nucleic Acids : Introduction. Constituents of nucleic acids. Ribonucleosides and ribonucleotides. The double helical structure of DNA.

UNIT–II (7 Hrs.)

Synthetic Polymers

Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers.

Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes.

Natural and synthetic rubbers.

UNIT–III (7 Hrs.)

Organic Synthesis via Enolates

Acidity of α-hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate : the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate. Alkylation and acylation of enamines.

UNIT–IV (8 Hrs.)

Organometallic Compounds

Organomagnesium Compounds : The Grignard reagents – Formation, structure and chemical reactions.

Organozinc Compounds : Formation and Chemical reactions.

Organolithium Compounds : Formation and Chemical reactions.