Paper 602102 Organic Chemistry 3Credits,75 Marks(45hrs)

3 Hrs /week

I) Heterocyclic Compounds 13 Hrs.

Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine, Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution. Mechanism of nucleophilic substitution reactions in pyridine.Comparison of basicity of pyridine, piperidine and pyrrole.Condensed Heterocyles: Introduction, Preparation of Quinoline (Skraups Synthesis), Isoquinoline (Bischler - Napirlaski) and Indole (Fischer indole Synthesis).

II) Carbohydrates 10 Hrs.

Definition, Introduction and Classification.Monosaccharides-Interconversion of Glucose and Fructose, chain lengthening, chain shortening of aldoses.Conversion of Glucose in to mannose.Determination of ring size of Monosaccharide, Mechanism of Mutarotation and Introduction to disaccharides (maltose, sucrose and lactose) and Polysaccharides (Starch and cellulose) without involving structure determination.

III) Synthetic Polymers 07 Hrs.

Introduction, Classification based on nature of synthesis (without mechanism) with examples. (Addition and condensation polymers).Properties, uses and synthesis of polyvinyl chloride, polyvinyl acetate, polystyrene, polyacrylonitrile, Nylon 6, Nylon 66.Introduction to synthetic and natural rubber, properties, uses and synthesis of Buna N., Neoprene and silicon rubber.

IV. Spectroscopy 15Hrs

UV-visible spectroscopy : Introduction, electronic transitions and designation of UV absorption bands, general applications of UV spectroscopy. Definition of Chromophores, Auxochromes, red and blue shifts.Identification of Isolated double bond, conjugated dienes, polyenes.Woodward-Feiserrules for dienes and trienes, Feiser-Kuhn rules for polyenes, Woodward rule for α, β unsaturated aldehydes and ketones.

Infrared spectroscopy :Introduction, absorption in the IR region, presentation of IR spectra, Molecular vibrations, calculation of vibrational frequencies (Hooke's Law).Application of IR spectroscopy, interpretation of IR spectra, characterisation of functional groups.