

SARDAR PATEL UNIVERSITY
Programme: B.Sc (Chemistry)
Semester: V
Syllabus with effect from: June-2013

Paper Code: US05CCHE01	Total Credit: 3
Title Of Paper: Organic Chemistry	

Unit	Description in detail	Weighting (%)
I	<p>Heterocyclic Compounds Heterocyclic systems, Structure of Pyrole, furan and thiophene, Source of Pyrole, furan and thiophene, Electrophilic substitution in Pyrrole, furan and thiophene Reactivity and orientation, Saturated five – membered heterocycle, Structure of pyridine, Sources of pyridine compounds, Reactions of pyridine, Electrophilic substitution in pyridine, Nucleophilic substitution in pyridine, Basicity of pyridine, Reduction of pyridine, Quinoline. The skraup synthesis, Isoquinoline. The Bischler–Napieralski synthesis. Knorr pyrrole synthesis, Vilsmeier-Haack reaction, Feist-Benary synthesis, Structure of furan, Reactivity and orientation effect, Directing effect of substitution, Protonation.</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none"> ➤ Organic Chemistry by Morrison and Boyd, 6th ed. ➤ Heterocyclic chemistry vol. II by R. R. Gupta, M. Kumar and V. Gupta 	
II	<p>Spectroscopy The infrared spectrum, Infrared spectra of hydrocarbons, Infrared spectra of alcohols, Infrared spectra of ethers, the nuclear magnetic resonance (NMR) spectrum. Number of signals, NMR positions of signals. Chemical shift, NMR peak area and proton counting, NMR Splitting of signals. Spin-spin coupling, NMR coupling constant,</p> <p>Carbon – 13 NMR (CMR) spectroscopy CMR Splitting, CMR Chemical shift, NMR and CMR spectra of hydrocarbons, NMR and CMR spectra of alkyl halides, NMR and CMR spectra of alcohols and ethers, Spectroscopic analysis of aldehydes and ketones, Spectroscopic analysis of Carboxylic acids, Spectroscopic analysis of amines and substituted amides, Spectroscopic analysis of Carboxylic acid derivatives, Problems based on above spectroscopic technique.</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none"> ➤ Organic Chemistry by Morrison and Boyd, 6th ed. 	
III	<p>Dienes And Macromolecules Dienes: Structure and properties, Stability of conjugated dienes, Resonance in conjugated dienes, Hyperconjugation, Ease of formation of conjugated dienes, Electrophilic addition to conjugated diene : 1,4- addition, 1,2 Vs 1,4-addition, Rate Vs equilibrium, Free-radical polymerization of diene, Polymer and polymerization, Free radical vinyl polymerization, Co-polymerization, Ionic polymerization, Coordination, polymerization, Step reaction, polymerization, Structure and properties of macromolecules. Distinguishing features of addition and condensation polymerization Copolymer, classification of polymers, plastics and resins, Phase system for polymerization (like bulk,</p>	



	<p>solution, emulsion and suspension polymerization).</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none"> ➤ Organic Chemistry by Morrison and Boyd, 6th ed. ➤ Synthetic organic chemistry by Gurdeep R. Chatwal. 	
IV	<p>Synthetic Detergent Introduction, Comparison of soap and detergents, Principle of cleansing action of detergents, Classification of detergents. Detergents Builders and additives, Synthesis and applications of following dyes from cheapest raw materials. (i) Miranol C2 M (ii) Tinopol RBX (iii) Igepon-T (iv) Sodium lauryl benzene</p> <p>Insecticide And Perfumes Insecticides: Introduction to Insecticides, Classification of Insecticides, advantage of organophosphorous compounds, Synthesis and applications of DDT, BHC, Baygon, Malathion, Ferbum, Heptachlor.</p> <p>Perfumes: Introduction to Perfumes, Vehicle or solvents, Fixatives. Synthesis and application of Musk xylene, Coumarin, Vanilline, Heliotropian, Linalon.</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none"> ➤ Synthetic Organic Chemistry by Gurdeep R. Chatwal 	

