

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

Paper Code: US05CICH02	Total Credit: 3
Title of Paper: Unit Process in Organic Manufacture	

Unit	Description in detail	Weightage (%)
I	Unit Process, Unit Operation, Nitration: Introduction, Nitration agents, Continuous v/s batch nitration, Kinetics and mechanism of nitration processes such as nitration of Paraffin hydrocarbons, Benzene to Nitrobenzene, Acetanilide to <i>p</i> - nitroacetanilice. Amination: By Reduction : Introduction, Methods of reduction, Metal and acid, Catalyst sulfide, electrolytic, Metal and alkali sulfites, Metal hydrides, Sodium metal, concentrated caustic oxidation, Reduction, Reduction commercial Manufacture of Aniline. By Aminolysis: Introduction, Aminating agents, Factors affecting.	25%
II	Sulphonation: Introduction Sulphonating agents, Chemical and Physical factors in Sulphonation, Kinetics and mechanism of Sulphonation reaction, Commercial Sulfonation of Benzene. Oxidation Reaction: Introduction, Types of oxidation reactions, Oxidizing agents, Kinetics and mechanism of oxidation of organic compounds, Liquid phase oxidation, Vapor phase oxidation, Commercial manufacture of benzoic acid and Acetic acid.	25%
III	Halogenation: Introduction, kinetics of halogenation reactions, Reagents for halogenation, Halogenation of aromatic side chain and nuclear halogenation, Commercial manufacturing Chlorobenzene and Monochloro acetic acid. Hydrogenation: Introduction, kinetics, Catalysts for hydrogenation reactions, Hydrogenation of vegetable oil, Hydrogenation of acids and esters to alcohols.	25%
IV	Esterification: Introduction, Hydrodynamics and kinetic of Esterification Reactions, Esterification by organic acids, Esterification of carboxy acid derivatives, Commercial manufacture of Ethyl acetate. Hydrolysis: Introduction, Hydrolysis agents, Kinetics, Thermodyanics and mechanism of hydrolysis. Alkylation: Introduction, Types of alkylation, Alkylating agents, thermodynamics and mechanism of alkylation reactions, Manufacture of alkyl benzene.	25%

Basic Text & Reference Books:

- Unit process in Organic synthesis, P. H. Groggins, Mcgraw- Hill Book Co., New York.

