2.11 30320 ORGANIC CHEMISTRY

UNIT-1 FUNDAMENTALS OF ORGANIC CHEMISTRY

1.1 Introduction of organic chemistry
1.2 Modern concept of organic chemistry
1.3 Scope of organic chemistry as separate branch of chemistry
1.4 Distinguish between organic compounds and inorganic compounds
1.5 Classification:
a) Based on the nature of carbon chain
b) Nature of chemical reactions
c) Nature of functional groups
1.6 Hydrocarbons
1.7 Saturated hydrocarbons – examples
1.8 Unsaturated hydrocarbons – examples
1.9 Homologous series and homologues
1.10 Functional groups and its importance
1.11 Definition of Isomerism – Isomers
1.12 Classification of isomerism
1.13 Structural isomerism – Chain – Position- functional – Metamerism – examples for each.
1.14 Stereoisomers – Geometrical – Cis-trans isomers – examples – optical isomers (definition)
1.15 Organic reactions definition and examples
1.16 Types of organic reactions
a) Substitution of Methane with Chlorine
b) Addition reaction – Hydrogenation of Ethene and Ethyne - Chlorination of Ethene and Ethyne
c) Markownikoff's rule
d) Elimination reaction – condensation reaction of formaldehyde – Ketones
1.17 Rearrangement reaction
1.18 Polymerisation reaction – Polyethylene PVC, TEFLON, NYLONS, POLYESTERS
1.19 Reduction reactions
1.20 Oxidation reactions
1.21 Biochemical reactions
1.22 Fermentation reactions

UNIT-2 REACTION MECHANISM

2.1 Homolytic fission
2.2 Etrolytic fission
2.3 Carboniumions
2.4 Carbanian
2.5 Electrophilic reactions
2.6 Nucleophilic reactions
2.7 Electron displacement effects
2.8 Inductive effects

2.9 Electromeric effect
2.10 Free radicals
2.11 Nomenclature of organic compounds
2.12 Common or trivial system
2.13 IUPAC system
2.14 IUPAC rules for naming organic compounds

UNIT-3 GENERAL STUDY OF STRUCTURAL FORMULA, PREPARATION/MANUFACTURE, PROPERTIES AND USES OF THE FOLLOWING HYDROCARBONS:

3.1 Methane
3.2 Ethene & Ethyne
3.3 Benzene
3.4 Phenols – Phenol
3.5 Ethers – Diethyl ether
3.6 Aldehydes – Formaldehyde
3.7 Ketanes – Acetone
3.8 Carboxlic Acids – Formic Acid
3.9 Esters – Ethylacetate
3.10 Amines – Methylamine

UNIT-4 ORGANIC COMPOUNDS OF BIOLOGICAL IMPORTANCE. (BRIEF STUDY OF MOLECULAR FORMULA, STRUCTURAL FORMULA, SOURCES, CLASSIFICATION, PROPERTIES AND USES OF):

4.1 Carbohydrates
4.2 Glucose & Sucrose
4.3 Starch & Cellulose
4.4 Proteins & Harmones
4.5 Insuline
4.6 Oxytocin
4.7 Adrenaline
4.8 Vitamins – A, B,(complex) C,D,E and K
4.9 Vitamin deficiency diseases
4.10 Food flavors – Natural and Synthetic
4.11 Perfumes – Natural & Synthetics
4.12 Drugs – Characteristics – Analgesic – Antipyretics – Antibiotics
4.13 Dyes – Natural and synthetic dyes

Reference Books:

1. T.B of Organic Chemistry - Arun Bahl, B.S. Bahl
2. Organic Chemistry - Solomons & Fryhle
3. Organic Chemistry Vol-I & II - I.L. Finar
4. Pharmaceutical Chemistry (Organic) - G.R. Chathval