

VEER NARMAD SOUTH GUJARAT UNIVERSITY Third Year B. Sc. (SEM –V)

**Chemistry Paper – VII (Organic Chemistry) Proposed syllabus from July 2013 50 Marks
(External) Total : 30 Hrs 20 Marks (Internal)**

Time : 2 Hrs. (Uni. Exam)

UNIT – I (A) Reaction Mechanism: 6 Hrs

(a) Different types of mechanism for Esterification and Hydrolysis: BAC2 AAC2 AAC1 AAL1 BAL2
(b) Mechanism of formation and hydrolysis of amides. (c) Pyrolytic elimination : Cope and Chugaev reaction

(B) Vitamins and Hormons: 4 Hrs

Structural determinations of Pyridoxine and Thyroxine and their synthesis, General introduction, structural determination of Riboflavin (Lactoflavin) & its Synthesis.

UNIT – II (A) Alkaloids: 5 Hrs

The occurrence, Classification, General methods to determine their structure, Analytical and Synthetic evidence to prove the structure of Nicotine and Papavarine.

(B) Carbohydrates: 5 Hrs

Introduction to disaccharide and polysaccharide. Structure determination of Maltose, Lactose and Starch.

UNIT – III

(A) Synthetic Drugs: 5 Hrs

Their classification, based on pharmacological action, synthesis and uses of Amylnitrate, Nalidixic acid, Ibruprofen, Pyrimethamine, Diazepam, Lidocaine, Chlorpropamide, Dapsone, Isoniazide, 5-Floro Uracil.

(B) Polypeptides: 5Hr

Definition, Synthesis of peptide by Merry Field Method, End group analysis, N-terminal determination, Sanger's method, Edman method, C-terminal determination by generation of amino alcohol and using digestive enzymes. End group analysis, selective hydrolysis of peptides classical levels of protein structure, Protein denaturation / renaturation.

Reference Books: (1) Mechanism and Structure in organic chemistry-Goulde. S. (2) Reaction mechanism in organic chemistry by Mukhargy & Singh (3) Principles of reaction mechanism in organic chemistry by Dharmaraha & Chawla (4) Organic reaction mechanism by Bansal Tata Mac. Hill (5) Organic Chemistry (Vol I & II) 6 th Edn, I. L. Finar. (6) Organic Chemistry by Hendrickson, Cram & Hammond (7) Organic Chemistry by Brown R. F. (8) Organic Chemistry by Solomon W. Graham (9) Principles of Organic Synthesis- R. O. C. Norman

(10) Basic Principles of Organic chemistry, by R. Y. Caserio, W. A. Benjamin (11) May's Chemistry of synthetic Drugs by Dyson. (12) Chemistry of drugs , Ener and Caldwell (13) Synthetic drugs by Tyagi

and Yadav. (14) Chemistry of synthetic Dyes Vol. I & II by Venkatraman (15) Synthetic Organic Chemistry by O. P. Agarwal (16) Synthetic Dyes by Chatwal & Anand (17) Chemistry of synthetic Dyes by I. G. Vashi (18) Organic Chemistry by Morrison and Boyd. (19) Chemistry of organic Natural Product Vol. I & II by O. P. Agarwal. (20) Chemistry of synthetic drugs by Trivedi (21) Green Chemistry, Environmentally Verigin Reactions by V. K. Ahuwalla published by Ane books India. (22) Principles of Medicinal Chemistry Vol. I & II by S. S. Kadam, K. R. Mahadik, K. G. Bothara (Nirali Prakashan) (23) Medicinal Chemsitry By Asuthosh kar 4/e (24) Organic reactions & their mechanism by P. S. Kalsi, New age international publishers

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UNIT – I (A) Molecular Rearrangements: 5 Hrs

(a) Mechanism of rearrangements involving C to C migrations as illustrated by Wagner – Meerwein and Pinocol-Pinacolone rearrangements. (b) Mechanism of rearrangements involving C to N migrations as illustrated by Hoffmann, Curtius, and Beckmann rearrangements. (B) Catalysis and Green Chemistry: 5 Hrs

(a) Catalysis in organic reaction, nucleophilic catalysis, Metal-ion catalysis, Intermolecular catalysis, Phase transfer catalysis. (b) (i) Green Chemistry : Fundamental Principle of Green Chemistry. (ii) Green synthesis of (i) Ibuprofen (ii) Novalgin (iii) Paracetamol

UNIT – II (A) Terpenoids (Isoprenoids) : 5 Hrs

Their occurance , classification , isoprene and special isoprene rule , general methods to determine their structure , analytical and synthetic evidences for the structure of Camphor & Citral. (B) Synthetic Polymers: 5 Hrs

Addition or chain growth polymerization, free radical vinyl polymerisation and Ionic vinyl polymerisation, Ziegler – Natta Polymerisation and Vinyl polymers, Condensation or step growth Polymerization, Polyesters, Polyamides, Phenol Fomaldehyde resins, Urea-formaldehyde resins, Epoxy resins, Natural and Synthetic rubbers (General account and no Synthesis)

UNIT – III (A) Plant Pigments: 5 Hrs

(a) classification (b) General introduction of Carotenoids. analytical and synthetic evidence of B-carotene. (c) General introduction of anthocynines and anthocyanidines. Analytical and Synthetic evidences of cyanidine chloride. (d) Introduction of flavones and flavonols. General method of determining. Structure of flavones. Synthesis of flavones. Analytical and synthetic evidences of quercetin.

(B) Synthetic dyes: (Colour and constitution electronic concepts) 5 Hrs

Definition and difference between dyes and pigments, classification of dyes, color and constitution – Witt's theory, synthesis and uses of Eriochrome black-T, Congo red, Crystal violet, Eosin, Indigo, Alizarine and Phenolphthalein.

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