

Elective Paper III (Group B) Chemistry of Natural Products	60 Hrs.
I Terpenoids and Carotenoids Classification, nomenclature, occurrence, isolation, general methods of structure determination, isoprene rule. Structure determination, stereochemistry, biosynthesis and synthesis of the following representative molecules: Citral, Geranoil, α -Terpeneol, Methol, Farnesol, Zingiberene, Santonin, Phytol, Abietic acid and B-Carotene.	15 hrs
II Alkaloids Definition, nomenclature and physiological action, occurrence, isolation, general methods of structure elucidation, degradation, classification based on nitrogen heterocyclic ring, role of alkaloids in plants. Structure, stereochemistry, synthesis and biosynthesis of the following: Ephedrine, (+)-Coniine, Nicotine, Atropine, Quinine and Morphine.	15 hrs
III Steroids Occurrence, nomenclature, basic skeleton, Diel's hydrocarbon and stereochemistry. Isolation, structure determination and synthesis of Cholestoral, Bile acids, Androsterone, Testosterone, Estrone, Progestrone, Aldosterone. Biosynthesis of steroids	15 hrs
IV Plant Pigments Occurrence, nomenclature and general methods of structure determination. Isolation and synthesis of Apigenin, Luteolin, Quercetin, Myrcetin, Quercetin-3-glucoside, Vitexin, Diadzein, Butein, Aureusin, Cyanidin-7-arabinoside, Cyanidin, Hirsutidin. Biosynthesis of flavonoids: Acetate pathway and Shikhimic acid pathway.	7 hrs
V Porphyrins Structure and synthesis of Heamoglobin and Chlorophyll.	3 hrs
VI Prostaglandins Occurrence, nomenclature, classification, biogenesis and physiological effects. Synthesis of PGE ₂ and PGF _{2a} .	3 hrs
VII Pyrethroids and Rotenones Synthesis and reactions of Pyrethroids and Rotenones. (For structure elucidation, emphasis is to be placed on the use of spectral parameters wherever possible).	2 hrs

Books Suggested:

1. Natural Products: Chemistry and Biological Significance. J.Mann, R..S. Davidson, J.B. Hobbs, D.V. Banthrope and J.B. Harborne, Longman, Essex.
2. Organic Chemistry, Vol 2, I.L. Finar, ELBS.
3. Stereoselective Synthesis : A Practical Approach, M. Nogradi, VCH.
4. Rodd's Chemistry of Carbon Compounds, Ed. S. Coffey, Elsevier.
5. Chemistry, Biological and Pharmacological Properties of Medicinal Plants from the

Americas, Ed.Kurt Hostettmann, M.P Gupta and A.Marston, Harwood Academic Publishers.

6. Introduction to Flavonoids, B.A Bohm, Harwood Academic Publishers.
7. New Trends in Natural Product Chemistry, Atta-ur-Rahman and M.I Choudhary, Harwood Academic Publishers.
8. Insecticides of Natural Origin, Sukh Dev, Harwood Academic Publishers.