

## **CY-604 Retrosynthetic Analysis**

Organic Reactions for Retro Synthesis: Functional Group Interconversion, Reverse of polarity, Cyclization reactions, Chemoselectivity, Regioselectivity and stereoselectivity, Protection and deprotection of some functional groups, Rearrangements. Disconnection Approach (One group disconnection): One group C-X disconnection, One group C-C disconnection of alcohol, One group C-C disconnection of carboxyl compounds. Disconnection Approach (Two group disconnection): Two group C-X disconnection, Two group disconnection/ Diel's Alder Reactions, Two group disconnection/1,3 Difunctionalized compound and  $\alpha$ ,  $\beta$ -unsaturated carbonyl compound, Two group disconnection/1,3 Difunctionalized compound, Micheal addition and Robinson Annulation, Two group disconnection:1,2-, 1,4- and 1,6- Difunctionalized compounds. Reconstructions: Amine synthesis, Alkene synthesis, 3,4,5 and 6 membered rings, pericyclic reactions, aromatic heterocycles, Use of acetylenes, carbonyl condensation. Biocatalysis: Basics and principles, Combining biocatalysis with chemo-catalysis, Development of biocatalysts (New technologies), Applications of biocatalysts in target molecule synthesis, Application of synthetic biology tools. Retrosynthetic Considerations and Syntheses of Complex, Biologically Active Molecules: Synthesis of Racemic Chloramphenicol, Synthesis of Racemic Menthol, Relationship of Asymmetric and Non-stereoselective Syntheses, Non-stereoselective Synthesis of Sertraline, Stereoselective Synthesis of Racemic  $\alpha$ - and  $\beta$ -Lycorane.