Syllabus for the Ph.D. Entrance Examination

Name Of the Institute	:	Institute of Pharmacy
Name of Department/Specialization	:	Pharmaceutical Chemistry
Academic Year	:	2026-2027

1. Organic Chemistry:

1.1 Different classes of compounds: Detail explanation of compounds with respect to their IUPAC / systematic nomenclature, methods of preparations, physical properties & chemical reactions with emphasis on reaction mechanisms & stereochemistry for Alkanes, Alkenes, Alkynes, Aliphatic hydroxyl, Alkyl halides, Aldehydes & Ketones, Carboxylic acids and functional derivatives of carboxylic acids.

1.2 Aromaticity & chemistry of aromatic compounds: Concept of aromaticity, Huckel's rule & its use in determining the aromatic/non-aromatic. Detail explanation of compounds with respect to their IUPAC / systematic nomenclature, methods of preparations, physical properties & chemical reactions with emphasis on reaction mechanisms & stereochemistry for Aromatic hydrocarbons, Phenolic compounds, Aromatic & aliphatic amines, Diazonium salts and Aromatic nitro- compounds, aryl halides, & ethers and Polycyclic aromatic hydrocarbons.

1.3 Heterocyclic Chemistry: IUPAC Nomenclature of heterocyclic rings [3-10 membered] containing O, S, & N atoms, Nomenclature of 2 & 3 fused rings containing mono-, di-, & multiple heteroatoms. Syntheses of quinoline, isoquinoline, benzoxazole, benzothiazole, & benzimidazole, benzotriazole, and benzothiazole.

2. Medicinal Chemistry:

Structure, nomenclature, classification, SAR, chemistry and pharmacology of drugs acting on Central nervous system, Cardiovascular system, Autonomic nervous system, Gastro intestinal system, Respiratory system, chemotherapeutic agents, Hormonal and Immune system. Structure based and Ligand based drug design.

3. Drug design:

An over view of structure-based ligand-based drug design. QSAR studies, Pharmacophore mapping, virtual screening, molecular docking studies.

Date: 07/02/2026

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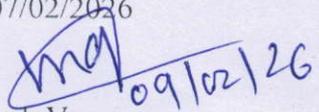
Dr. Vivek Vyas
Signature of Area coordinator

Dr. Gopal Natesan
Signature of HoI