

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm
SEMESTER: VI

Subject Name: Pharmaceutical Chemistry – VIII (Medicinal Chemistry – II)
Subject Code: 2260004

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	0	3	6	80	20	80	20

Theory

Sr No	Course Contents	Total Hrs
1	Receptors and Drug action: <ul style="list-style-type: none"> Types of receptors. Theories of Drug-Receptor Interactions. Various forces involved in drug-receptor interaction. Factor affecting the drug-receptor interaction. 	04
2	Drug metabolism <p>a) Introduction, Xenobiotics, Site of drug metabolism, Phase-I and Phase-II Metabolism in detail, overview about CYP450 and its importance, Factor affecting drug metabolism, importance of drug metabolism in drug design</p>	11
3	Introduction, history, classification, nomenclature, mechanism of action, adverse effects, therapeutic uses, structure activity relationship (SAR), synthetic procedures of selected drugs and recent developments of following categories to be covered	
	Drugs Acting on CNS:	
	CNS stimulants: Analeptics, Antidepressants, Hallucinogens <ul style="list-style-type: none"> SAR:- Tricyclic antidepressants Synthesis:- Amphetamine, Fluoxetine, Imipramine 	05
	CNS Depressants: General and local anesthetics, Sedative and Hypnotics, Anxiolytics, Antiepileptics, Antipsychotics <ul style="list-style-type: none"> SAR:- Benzoic acid and Aniline derivatives with Local anesthetic activity, Barbiturates, Benzodiazepines, Phenothiazines, Butyrophenones Synthesis:- Halothane, Lignocaine, Thiopental sodium, Phenobarbitone, Chlordiazepoxide, Phenytoin, Carbamazepine, Chlopromazine 	13
	Antiparkinson's agents <ul style="list-style-type: none"> Synthesis: L-Dopa 	02
	Non Steroidal Anti-Inflammatory Agents, Anti Gout and DMARDS: <ul style="list-style-type: none"> Synthesis:- Paracetamol, Aspirin, Diclofenac, Ibuprofen, Indomethacin, Allopurinol, Mefenamic acid, Nimesulide, 	07

	Naproxen	
	Alzheimer's disease	02
	Cognition enhancers	01

Practical – 22600P4

Sr. No.	Content	No. of practical hours
A	Separation and qualitative analysis of Organic binary mixtures containing water insoluble components having salt, acidic, phenolic, amphoteric, basic and neutral nature (Solid + Solid, Solid + liquid, Liquid + liquid and Eutectic mixtures) with derivative preparations. <ol style="list-style-type: none"> 1. Salts (sodium benzoate, Sodium salicylate etc.) 2. Acids (Benzoic acid, salicylic acid, cinnamic acid, acetyl salicylic acid etc.) 3. Phenols (α-Naphthol, β-Naphthol, o/m/p-nitrophenol, Phenol, o/m/p-cresol etc.) 4. Strong acidic amphoteric (P-amino benzoic acid, o-amino benzoic acid, sulphanilic acid etc.) and weak acidic amphoteric (Sulphanilamide etc.) 5. Bases (α-Naphthylamine, o/m/ p-anisidine, diphenyl amine, o/m/p-nitroaniline, Aniline, N-methyl aniline, N,N-dimethyl aniline etc.) 6. Neutrals (Benzophenone, Benzaldehyde, Acetophenone, Nitrobenzene, m-dinitrobenzene, acetanilide, benzamide, naphthalene etc.) 	33
1	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
2	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
3	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
4	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
5	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
6	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
7	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
8	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
9	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
10	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
11	Separation and qualitative analysis of Organic binary mixtures with derivative preparation	
B	Synthesis of some organic compounds:	12

12	Aspirin	
13	Paracetamol	
14	Methyl salicylate	
15	Phenytoin	

References Books:

1. J. N. Delagado and W. A. R. Remers, edn, Wilson and Giswolds Textbook of Organic Medicinal and Pharmaceutical Chemistry, J. Lippincott Co. Philadelphia
2. W. C. Foye, Principles of Medicinal Chemistry, Lea and Febiger, Philadelphia
3. H. E. Wolff, edn, Burgers Medicinal chemistry, John Wiley and sons, New York
Oxford University Press, Oxfords
4. Daniel Lednicer, Strategies for organic drug synthesis and design, John Wiley and Sons USA
5. B. N. Ladu, H. G. Mandel and E. L. Way. Fundamentals of Drug Metabolism and Disposition. William and Willkins co. Baltimore
6. Vogel's Text books practical organic chemistry, ELBS/Longman, London
7. Mann and Saunders, Practical organic chemistry, Orient Longman, UK
8. Shriner, Hermann, Morill, Curtin and Fusion. The Systematic Identification of Organic Compounds, John Wiley and Sons
9. Hans Thacher Clarke, A Handbook of Organic Analysis Qualitative and Quantitative, Fourth edition, Orient Longmans Ltd.
10. Arthur Vogel, Elementary Practical Organic Chemistry, Part-I and II, Second edition, CBS Publisher.