

DIPLOMA IN PHARMACY (FIRST YEAR)

SUBJECT : PHARMACEUTICAL CHEMISTRY
 SUBJECT TEACHER :
 TOTAL HOURS ASSIGNED : Theory: 75 hours or 82 classes

Sl No	Title of Unit/ Chapter	Theory Day	Topics to be covered	Date	Actually Covered	Remark
GENERAL DISCUSSION ON THE FOLLOWING INORGANIC COMPOUNDS INCLUDING IMPORTANT PHYSICAL AND CHEMICAL PROPERTIES, MEDICINAL AND PHARMACEUTICAL USES, STORAGE CONDITIONS AND CHEMICAL INCOMPATIBILITY.						
1.	INTRODUCTION TO PHARMACEUTICAL CHEMISTRY <ul style="list-style-type: none"> ▪ SOURCES AND TYPES OF ERRORS ▪ IMPURITIES IN PHARMACEUTICALS 	1.	Scope and objectives			
		2.	Accuracy, Precision, Significant figures			
		3.	Source and effect of impurities in pharmacopoeial substances, Importance of limit test			
		4.	Principle and procedure of Limit tests for chlorides			
		5.	Principle and procedure of Limit tests for Sulphates			
		6.	Principle and procedure of Limit tests for Iron			
		7.	Principle and procedure of Limit tests for Heavy metals			
		8.	Principle and procedure of Limit tests for Arsenic			
2.	VOLUMETRIC ANALYSIS	9.	Fundamentals of volumetric analysis			
		10.	Acid—base titration			
		11.	Non-aqueous titration			
		12.	Precipitation titration			
	GRAVIMETRIC ANALYSIS	13.	Complexometric titration			
		14.	Redox titration			
		15.	Principle and method			
		16.	Principle and method			
3.	INORGANIC PHARMACEUTICALS	PHARMACEUTICAL FORMULATIONS, MARKET PREPARATIONS, STORAGE CONDITIONS AND USES OF				
	• HAEMATINICS	17.	Ferrous sulphate, Ferrous fumarate, Ferric ammonium citrate, Ferrous ascorbate, Carbonyl iron			
	• ANTACIDS	18.	Aluminium hydroxide gel, Magaldrate, Sodium bicarbonate, Calcium carbonate			
	• ANTI-MICROBIAL AGENTS	19.	Silver Nitrate, Ionic Silver, Chlorhexidine Gluconate, Hydrogen peroxide			
		20.	Boric acid, Bleaching powder, Potassium permanganate			
• DENTAL	21.	Calcium carbonate, Sodium fluoride				

PRODUCTS	22.	Denture adhesives, Mouth washes			
	• MEDICINAL GASES	23.	Carbon dioxide, nitrous oxide, Oxygen		
4.	24.	Introduction to nomenclature of organic chemical systems with particular reference to heterocyclic compounds containing up to Three rings			
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Study of the following category of medicinal compounds with respect to classification, chemical name, chemical structure (compounds marked with*) uses, stability and storage conditions, different types of formulations and their popular brand names

5 DRUGS ACTING ON CENTRAL NERVOUS SYSTEM


• Anaesthetics	26.	Thiopental Sodium * ,Ketamine Hydrochloride * ,Propofol			
	• Sedatives and Hypnotics	27.	Diazepam* ,Alprazolam*		
•		28.	,Nitrazepam, Phenobarbital*		
• Antipsychotics	29.	Chlorpromazine Hydrochloride*			
	30.	Haloperidol * , Risperidone*			
	31.	Sulpiride* , Olanzapine,			
	32.	Quetiapine, Lurasidone			
• Anticonvulsants:	33.	Phenytoin* , Carbamazepine* ,Clonazepam, Valproic Acid*			
	34.	Gabapentin* , Topiramate, Vigabatrin, Lamotrigine			
• Anti-Depressants:	35.	Amitriptyline Hydrochloride * , Imipramine Hydrochloride* , Fluoxetine*			
	36.	Venlafaxine, Duloxetine, Sertraline			
	37.	Citalpram, Escitalopram, Fluvoxamine, Paroxetine			

6. DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM

• Sympathomimetic Agents: Direct Acting:	38.	Nor-Epinephrine* , Epinephrine ,Phenylephrine, Dopamine*			
	39.	Terbutaline, Salbutamol (Albuterol), Naphazoline* , Tetrahydrozoline			
• Indirect Acting Agents:	40.	Hydroxy Amphetamine, Pseudoephedrine, Agents with mixed Mechanism: Ephedrine, Metaraminol			
• Adrenergic Antagonists:	41.	Alpha Adrenergic Blockers: Tolazoline, Phentolamine			

		42.	Phenoxybenzamine, Prazosin, Beta Adrenergic Blockers: Propranolol* Atenolol* , Carvedilol			
• Cholinergic Drugs and Related Agents:		43.	Direct Acting Agents: Acetylcholine* , Carbachol, And Pilocarpine			
		44.	Cholinesterase Inhibitors: Neostigmine* , Edrophonium chloride, Tacrine Hydrochloride, Pralidoxime Chloride, Echothiopate Iodide			
• Cholinergic Blocking Agents:		45.	Atropine Sulphate* , Ipratropium Bromide			
• Synthetic Cholinergic Blocking Agents:		46.	Tropicamide, Cyclopentolate Hydrochloride, Clidinium Bromide, Dicyclomine Hydrochloride*			
7	DRUGS ACTING ON CARDIOVASCULAR SYSTEM					
• Anti-Arrhythmic Drugs:		47.	Quinidine Sulphate, Procainamide Hydrochloride, Verapamil, Phenytoin sodium*			
		48.	Lidocaine Hydrochloride, Lorcaïnide Hydrochloride, Amiodarone and Sotalol			
• Anti-Hypertensive Agents:		49.	Propranolol* , Captopril* , Ramipril, Methyldopate Hydrochloride,			
		50.	Clonidine Hydrochloride, Hydralazine Hydrochloride, Nifedipine,			
• Antianginal Agents		51.	Isosorbide Dinitrate			
8 • Diuretics:		52.	Acetazolamide, Furosemide* , Bumetanide, Chlorthalidone,			
		53.	Benzthiazide, Metolazone, Xipamide, Spironolactone			
9. • Hypoglycemic Agents:		54.	Insulin and Its Preparations, Metformin*			
		55.	Glibenclamide* , Glimepiride, Pioglitazone,			
		56.	Repaglinide, Gliflozins, Gliptins			
10	Analgesic And Anti-inflammatory agents	57.	Morphine Analogues			
	Narcotic Antagonists: Nonsteroidal Antiinflammatory Agents (NSAIDs)	58.	Aspirin* , Diclofenac,			
		59.	Ibuprofen* , Piroxicam, Celecoxib,			
		60.	Mefenamic Acid, Paracetamol* , Aceclofenac			
1.	ANTI-INFECTIVE AGENTS					

• Antifungal Agents	61.	Amphotericin-B, Griseofulvin, Miconazole, Ketoconazole*				
	62.	Itraconazole, Fluconazole*, Naftifine Hydrochloride				
• Urinary Tract Anti-Infective Agents:	63.	Norfloxacin, Ciprofloxacin, Ofloxacin*, Moxifloxacin,				
• Anti-Tubercular Agents:	64.	INH*, Ethambutol, Para Amino Salicylic Acid, Pyrazinamide, Rifampicin, Bedaquiline, Delamanid, Pretomanid*				
• Antiviral Agents:	65.	Amantadine Hydrochloride, Idoxuridine, Acyclovir*,				
	66.	Foscarnet, Zidovudine, Ribavirin, Remdesivir, Favipiravir				
• Antimalarials:	67.	Quinine Sulphate, Chloroquine Phosphate*,				
	68.	Primaquine Phosphate Mefloquine*,				
	69.	Cycloguanil, Pyrimethamine, Artemisinin				
• Sulfonamides:	70.	Sulfanilamide, Sulfadiazine, Sulfamethoxazole, Sulfacetamide*,				
	71.	Mafenide Acetate, Cotrimoxazole, Dapsone*				
12. Antibiotics:	72.	Penicillin G				
	73.	Amoxicillin*				
	74.	Cloxacillin, Streptomycin				
	Tetracyclines:	75.	Doxycycline, Minocycline,			
	Macrolides:	76.	Erythromycin,			
		77.	Azithromycin,			
Miscellaneous:	78.	Chloramphenicol*				
	79.	Clindamycin				
13. Anti-Neoplastic Agents:	80.	Cyclophosphamide*, Busulfan, Mercaptopurine, Fluorouracil*,				
	81.	Methotrexate, Dactinomycin, Doxorubicin Hydrochloride,				
	82..	Vinblastine Sulphate, Cisplatin*, Dromostanolone Propionate				


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