



AMRAPALI UNIVERSITY

SYLLABUS FOR Ph.D ENTRANCE TEST IN PHARMACY

PHARMACEUTICS

Unit 1

Preformulation studies : goals of preformulation, preformulation methodology, solid state properties, partition coefficient, solubility, dissolution of drug substance & dosage, and stability, compatibility tests.

Unit 2

Dosage forms: Formulation and evaluation of tablets, capsules, parenterals, liquid dosage forms and cosmetics like lipstick, shampoo, creams, nail preparations and dentifrices, tablet defects and tablet coating defects, Pharmaceutical calculations. Biopharmaceutical classification of drugs.

Unit 3

Novel drug delivery system: Method of preparation, evaluation and application of Novel drug delivery systems like, Nanoparticles , Liposomes, ethosomes, niosomes, microemulsions, nanoemulsions. Recent advancement in transdermal drug delivery, fundamentals of skin permeation, technologies for developing transdermal systems, evaluation of transdermal systems.

Unit 4

Introduction to Pharmacokinetics: Pharmacokinetics models, physiological models, one compartment open model drug disposition, plasma elimination half-life, two compartment open model drug disposition. Drug Distribution-Apparent volume of distribution (one and two compartment models). Protein binding of drugs-Implications of drug protein binding in pharmacokinetics and therapy.

MEDICINAL CHEMISTRY

Unit 1

Drug Design : Introduction to drug design. History and development of QSAR. Stereochemistry of drug molecules.

Unit 2

Cardiovascular Agents: Structure, nomenclature, classification, synthesis, SAR and metabolism of the following : Anti-hypertensive agents, antiarrhythmic agents, antihyperlipidemic agents, antianginal agents.

Unit 3

i) Dr. Abhishek Dha
ii) Dr. Arun Kumar Singh
iii) Mr. Navin chandra pant
iv) Mrs. Mamta Goswami

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Analgesics and anti inflammatory agents, Prostaglandins, Non steroidal drugs, Steroidal drugs, Endorphins. Diuretic agents. Antiprotozoal drugs, Antiviral, Antitubercular, Antimalarial, Anticancer, Antiamoebic drugs.

PHARMACOLOGY

Unit 1

Introduction of Pharmacology: General pharmacological principles including Toxicology, Pharmacokinetics and pharmacodynamics, Drug interaction. Adverse drug reactions and drug Interactions.

Unit 2

Drugs acting on the Autonomic Nervous System and Central Nervous System : Drugs in the treatment of Anxiety, Depression, Psychosis, Mania, Epilepsy and Parkinsonism.

Unit 3

Drugs effecting Cardiovascular function and Digestive System: Diuretics, Congestive heart failure and its treatment, Pharmacotherapy of hypertension, Drugs used in the treatment of coronary artery diseases, Arrhythmia and its management, Pharmacotherapy of peptic ulcer, ulcerative colitis, Irritable Bowel Syndrome, Diarrhoea, Constipation, Emetics & antiemetics.

Unit 4:

Chemotherapy: General principles of chemotherapy, sulfonamides and cotrimoxazole, antibiotics (Penicillins, cephalosporins, chloramphenicol, macrolides, quinolones and fluoroquinolins, tetracycline and aminoglycosides), antitubercular agents, antileprotic agents, antifungal agents, antiviral drugs, antimalarial drugs and chemotherapy of malignancy.

PHARMACEUTICAL ANALYSIS

Unit 1

UV-Visible Spectroscopy: Introduction, Beers law and its limitations, Woodward's Fiesher rules for calculating absorption maximum, instrumentation, and applications.

- 1) Dr. Abhijeet Singh
- 2) Dr. Arun Kumar Singh
- 3) - Mr. Navin Chandrapant
- 4) - Mrs. Mamta Goswami



Unit 2

Fundamental principles, basic instrumentation, and pharmaceutical applications of, Infrared spectroscopy, C13 NMR spectroscopy, HPLC, HPTLC, Gel chromatography, Mass Spectroscopy

PHARMACOGNOSY

Unit 1

Metabolic pathways in higher plants and their determination

Brief study of basic metabolic pathways and formation of different secondary metabolites through these pathways: Shikimic acid pathways, Acetate pathways and amino acid pathways.

Unit 2

General introduction ,composition ,chemistry and chemical classes of :

Alkaloids: Vinca, Rauwolfia, Opium .

Glycosides: Senna, Aloe, BitterAlmond

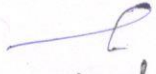
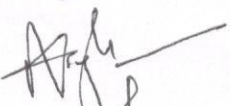
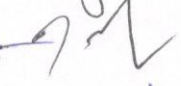
Tannins: Catechu, Pterocarpus

Unit 3

Isolation, Identification and Analysis of Phytoconstituents :

Terpenoids: Menthol, Citral

Resins: Curcumin, Podophyllotoxin

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