

DEPARTMENT OF CLINICAL PHARMACY
AND PHARMACOLOGY
FACULTY OF PHARMACY
UNIVERSITY OF DHAKA

Ph.D Syllabus

Marks Distribution :

Theoretical	Marks
Paper-I ; Pharmacology and Clinical Pharmacy	100
Paper-II; Drug Use Management and Toxicology	100
Total	200
Thesis	-
Viva	-
Grand Total	200

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PAPER-I

Pharmacology and Clinical Pharmacy

1. **Cancer Biology and Therapy** : Introduction to biology of cancer; Modes of treatment, Radiotherapy. Chemotherapy, Biological therapy including immunology and gene therapy. Other chemotherapeutic targets including vascular targets, Abnormal tumorphysiology, Growth factors, p53 and apoptosis and DNA repair; Relapses and resistance' Metastasis, Carcinogenesis and genetic predisposition, Diagnostic tests and prognostic factors.
2. **Drug Metabolism** : Pathways of drug metabolism, Metabolism of various groups of drugs, Factors affecting drug metabolism, Methods of studying drug metabolism. New aspects of drug metabolism, Metabolic products of common drugs.

Contd....p/2

3. **Pharmacogenetics and pharmacogenomics:** Introduction, definition, SNPs and other polymorphisms. RFLP and direct sequencing as methods of studying polymorphisms. Pharmacogenetics of cytochrome p 450. e.g. CYP2D6, CYP2C9, CYP2C19, CYP3A4, CYP2A6. Role of NAT2 and CYP2E1 in tuberculosis. Role of different polymorphisms in Lung diseases. Methods of studying prominent SNPs using any software. Pharmacogenetics of cancer, psychiatric disease, receptor etc.
4. **Bioinformatics :** Definition and concepts, importance of bioinformatics, biological database, primary sequence database, protein sequence database, DNA sequence database, genome resource web addresses. Multiple sequence alignment. Coiled coil protein analysis, Importance of multiple sequence alignment for drug design. Importance of coiled coil peptide for drug design.
5. **Clinical signs :** Symptoms and management of poisoning cases with pesticides, solvents, vapors gases, food toxin, cyanides, poisons cosmetics and toxins of animal origin; Over doses of drugs, Drug interactions etc.
6. **Clinical Pharmacy for OTC Preparations;** Antacids and anti-flatulants, Antidiarrhoeal laxatives, emetics and anti-emetics, Antihistamins and antiallergen, Analgesics, Contraceptives; Ear, nose and throat preparations; Dermatological preparations.
7. **Respiratory Disorders ; (a) Asthma:** Epidemiology, aetiology, Pathophysiology, Clinical manifestations, treatment of chronic asthma and acute severe asthma. (b) Chronic Obstructive Airway Diseases: Epidemiology, Aetiology, Pathophysiology, Clinical manifestation, Investigations and treatment.

PAPER-II

Drug Use Management and Toxicology

1. **Problems of Irrational Use of Drugs :** Background and definition of Rational use of drugs, Factors affecting irrational use of drugs, Impact of irrational use of drug, Examples of irrational use of drugs. Drug use pattern in developed and developing countries, Changing drug use pattern and factors affecting drug use. International network for rational use of drugs.
2. **Standard Treatment :** Introduction to standard treatment Importance of standard treatment guidelines. Salient features of standard treatment and its advantages, Development and implementation of standard treatments, Standard treatment guidelines in different countries.
3. **Basic Concepts in Toxicology :** Introduction to toxicology, Assessment of toxic substances and their impact on target organs, Toxicity testing and design of toxicity testing Acute and chronic toxicities. Toxicity study in animal model.
4. **The Biotransformation of Toxins and their Inactivation:** An Introduction to Biotransformation, Biotransformation of toxins and their inactivation, Role of p-450, superoxide dismutase and glutathion-s-transferase in their biotransformation, mechanism of action of different antioxidants.
5. **Toxicology of Heavy-metals;** Acute and chronic toxicity of heavy-metals, Sources and diagnosis of lead, arsenic and mercury poisoning. Their mechanism of action and toxicological effects. Treatment of poisoning and use of heavy-metal antagonists.
6. **The mechanism of toxin action;** DNA damage and its repair, mutagenicity and carcinogenicity-Cell death and apoptosis. Nuclear hormone receptor mediated toxicity peroxisome proliferators and environmental oestrogens. Neurotoxicity, intra cellular free radicals, Risk assessment and toxicity testing.