
Syllabus for PhD entrance Examination: Medical Pharmacology

General Pharmacological principles and applied sciences

1. Introduction
2. Complementary and alternative medicine
3. Pharmacokinetics – absorption, biotransformation, elimination
4. Methods of prolongation of drug effect, posology & factors modifying dose of drug
5. Pharmacodynamics
6. Factors modifying drug action
7. Adverse drug reaction, drug interactions, phases of drug development, fixed dose combinations, rational drug concept
8. Pharmacovigilance, pharmacoconomics, drug information
9. Toxicology
10. Pharmacogenetics

Systemic pharmacology, chemotherapy & therapeutics

1. Nervous system
2. Autacoids
3. Drugs affecting kidney, uterine motility, cardiovascular system, gastrointestinal & respiratory system
4. Chemotherapy – parasites, bacteria
5. Antineoplastic agents
6. Immunomodulators
7. Hormones and hormone replacement therapy
8. Vitamins, heavy metals, therapeutic gases
9. Gene therapy
10. Pharmacology of bisphosphonates, melatonin – therapeutic potential

Experimental pharmacology and bioassay

1. Experimental methodologies involved in the discovery of drugs
2. Animal handling and care, anaesthetising animals, euthanasia
3. Drug screening methods involved in various drugs and antimicrobial agents
4. Methods involved in testing teratogenicity, carcinogenicity and organ toxicities in animals
5. Instrumentation in drug analysis – working principle of various instruments like chromatography
6. Processing of biological material for drug analysis
7. Calculations I drug analysis
8. Good laboratory practice

Clinical pharmacokinetics & recent advances

1. Pharmacokinetics
2. Drug regulation
3. Drug development process
4. Therapeutic drug monitoring