

**GEETA UNIVERSITY**  
**PhD (PHARMACY) ENTRANCE SYLLABUS**

**Unit I**

Buffer, Solubility, Matter, properties of matter, Viscosity and Rheology, Surface and interfacial phenomenon, Introduction to dosage form, Sources of drug information, Dosage Form Necessities and Additives, Powders, Capsules, Tablets, Parenterals, Suspensions, Emulsions, Suppositories, Semisolids, Liquids, Pharmaceutical Aerosols, Ophthalmic preparations, Preformulations, Stability of formulated products, Bio-availability & Bio-equivalence, Fungi and Viruses, Aseptic Techniques, Sterilization & Disinfection, Microbial Assay, Drying, Size reduction and size separation, Extraction, Mixing, Crystallization, Evaporation, Distillation, Fluid flow, Heat transfer, Filtration and centrifugation, Dehumidification and humidity control, Refrigeration and air conditioning, Drugs and Magic Remedies (Objectionable Advertisements) Act 1954, Patent Act, Pharmacy Act, Medicinal and Toilet Preparations, Novel Drug Delivery System, Design and analysis of experiments.

**Unit II**

Theoretical Aspects, basic instrumentation and applications of the following analytical techniques: UV-Visible Spectroscopy, Infrared Spectroscopy, NMR Spectroscopy, Mass Spectroscopy, Electroanalytical methods, Chromatographic techniques, Titrimetric analysis. Basic Principle of medicinal chemistry, Principles and Approaches to drug design, Molecular modeling, QSAR. Medicinal chemistry of chemotherapeutic agents: Anticancer, Antibiotics, Antiviral.

**Unit III**

Historical development, and scope of Pharmacognosy, Classification of crude drugs, Factors influencing quality of crude drugs, Techniques in microscopy, Introduction to phytoconstituents, Principles of plant classification, Animal products, Plant products, Toxic drugs, Enzymes, Natural pesticides and insecticides, Adulteration and evaluation of crude drugs, Quantitative microscopy, Biogenetic pathways, Carbohydrates & lipids, Tannins, Volatile oils, Resinous drugs, Glycosides, Alkaloids, Extraction and Isolation Techniques, Phytopharmaceuticals, Quality control and Standardization of herbal drugs, Herbal formulations, Worldwide trade of

crude drugs and volatile oils, Herbal cosmetics, Patents, Ayurvedic system of medicine, Homeopathic system of medicine.

Nutraceuticals and dietary supplements, classification of nutraceuticals, current trends and future scope, Inorganic mineral supplements, vitamin supplements, Dietary fibres, Antioxidants, Polyunsaturated fatty acids, formulation and standardization of nutraceuticals, Regulatory aspects, FSSAI guidelines

#### **Unit IV**

Introduction to Pharmacology, Pharmacodynamics, Pharmacokinetics, Adverse drug reactions, Discovery and development of new drugs-Preclinical and clinical studies.

Neurohumoral transmission in autonomic and central nervous system, Peptides and proteins as mediators, Local anesthetic agents. Drugs used in Myasthenia Gravis, Pharmacology of central nervous System, General anesthetics. Alcohols and disulfiram. Sedatives, hypnotics and centrally acting muscle relaxants, Psychopharmacological agents: Antipsychotics, antidepressants, anti-anxiety agents, anti-manics and hallucinogens. Pharmacology of cardiovascular system.

#### **Unit V**

Carbohydrates, Proteins, Lipids, Vitamins, Biological oxidations & reductions systems in the body their role, Enzymes, Nucleic acids, Hereditary diseases.