



Recruitment Section

University of Kashmir

NAAC Accredited Grade A++

NOTICE

It is notified for the information of all those candidates who have applied for the post of Pharmacist Post Code: (PGD-HC-1) and (PGD-HC-2) advertised vide advertisement notice No: 12 of 2025 dated 28.11.2025 that the syllabus for the conduct of OMR based written test is appended as Annexure I to this notice .

However, the date for conduct of the said test shall be notified separately.

Sd/-
Deputy Registrar
(Recruitment)

No: KU/ Rectt. / Syllabus-SB/2026

Dated: 10-04-2026

ANNEXURE -I

Syllabus for the post of Pharmacist

Unit 1

Hospital and its organization

Definition, Classification of hospital- Primary, Secondary and Tertiary hospitals, Classification based on clinical and non- clinical basis, Organization Structure of a Hospital, and Medical staffs involved in the hospital and their functions. functions of hospital pharmacy, Organization structure, Location, Layout and staff requirements, and Responsibilities and functions of hospital pharmacists.

Hospital Pharmacy

Hospital Pharmacy: Definition, functions and objectives of hospital pharmacy, Location, Layout & flow chart of material and men, personnel and facilities required, including equipments. Detailed discussion of; i) Unit dose dispensing ii) Floor ward stock system & satellite pharmacy services. iii) Central sterile services; bed side pharmacy. iv) Prepackaging , Establishment of an OTC counter & dispensing personnel, space; equipment; apparatus and other facilities required for; Methods to achieve safe, efficient and speedy dispensing of drugs, , Maintenance of records of issue and use of Narcotics and Dangerous drugs, Ward stock medicines and emergency drugs.

Medical stores: Medical store management, Organization of Drug store, Location and layout, Inventory and stock control, Procedures for procurement of drugs and supplies from different sources. Inspection and issue of material. Storage of materials of Non- parenterals, Parenterals) , Pricing policy, Utilization of computers in drug store management. Maintenance of records of retail and wholesale., Pharmacy Therapeutics Committee: Constitution and functions of Pharmacy therapeutics committee, Drug Information Service and Drug Information Bulletin: . Manufacturing of Pharmaceuticals In Hospitals: a) Sterile manufacture. Large and Small volume parenterals: facilities, requirements, layout, production planning, manpower requirements, b) Non-sterile manufacture: Liquid orals, External bulk concentrates. Nomenclature and uses of surgical instruments, hospital equipments and health accessories.

Community Pharmacy

Organization and structure of retail and wholesale drug store, types and design, Legal requirements for establishment and maintenance of a drug store, Dispensing of proprietary products, maintenance of records of retail and wholesale drug store

Drug distribution system in a hospital

Dispensing of drugs to inpatients and outpatients, types of drug distribution systems, charging policy and labelling, Dispensing of drugs to ambulatory patients.

Hospital formulary

Definition, contents of hospital formulary, Differentiation of hospital formulary and Drug list, preparation and revision, and addition and deletion of drug from hospital formulary

Social Pharmacy

Definition and Scope. Social Pharmacy as a discipline and its scope in improving the public health. Role of Pharmacists in Public Health, Concept of Health - WHO Definition, various dimensions, determinants, and health indicators. National Health Policy – Indian perspective Introduction to Millennium Development Goals, Sustainable Development Goals, FIP Development Goals (1)

Preventive healthcare – Role of Pharmacists in the following

Demography and Family Planning

Mother and child health, importance of breastfeeding, ill effects of infant milk substitutes and bottle feeding, Overview of Vaccines, types of immunity and immunization

Effect of Environment on Health – Water pollution,

importance of safe drinking water, waterborne diseases, air pollution, noise pollution, sewage and solid waste disposal, occupational illnesses, Environmental pollution due to pharmaceuticals
Psychosocial Pharmacy:

Introduction to food safety,

Adulteration of foods, effects of artificial ripening, use of pesticides, genetically modified foods, Dietary supplements, nutraceuticals, food supplements – indications, benefits, Drug-Food Interactions

Unit 2

Clinical Pharmacy and Drug Interaction: Introduction to clinical pharmacy practice - Definition and scope - Terminologies commonly used in the practice of medicine,

Functioning and working of clinical pharmacy unit; manpower requirements. . Methodology and techniques of Analysis of drug contents and their metabolites in blood and other biological fluids and to correlate the therapeutic efficacy with drug concentrations in biological fluids.

Biological half life; PKa values, pH-partition coefficient and stability with reference to clinical applications.

Pharmacists and Patient counseling with specific examples. . Drug interactions: a) Definition and Introduction Mechanism of drug interactions. b) Drug- Drug Interactions with reference to Analgesics, Diuretics, Cardiovascular drugs, Gastrointestinal agents, Vitamins and Hypoglycaemic drugs.

Unit 3

Posology: Dose and dosage of drugs, Factors influencing dose. Calculations of doses on the basis of age, sex and surface area, Percentage calculations %, w/v, v/v & w/w.

Drug stability: Mechanisms of drug degradation, Influence of light and temperature on drug decomposition. Chemical stability testing in dosage forms and storage

Reaction kinetics: Molecularity of reactions, order of reaction, determination of order, factors affecting rate of reaction, accelerated stability analysis.

Prescriptions: Modern Methods of prescribing Common Latin abbreviations,

Alcohol dilutions, use of Alligation methods; proof spirit. Isotonic solutions, **Suppositories:** Displacement value of suppositories

Powders: Types; merits and demerits; Compounding, storage and packaging of: Effervescent powders, Granules, Cachets and tablet triturates, Dusting powders.

Liquids Dosage Forms: Preparation, merits, demerits, storage and packaging of solutions and mixtures of Pharmaceuticals

Emulsions: Preparation, identification uses, Classification of emulsifying agents and stability of Emulsions.

Suspensions: Preparation of suspensions, suspending agents; Flocculated and Deflocculated suspensions; stability of suspensions.

Semi-Solid Dosage Forms: Ointment bases: dispensing, demerits and packaging aspects of ointments, pastes, jellies, Poultice, Suppositories and Pessaries.

Sterile Dosage Forms: Definition, types, their merits and demerits, Elementary study of the formulation characteristics of the following types: Injectable preparations, Ophthalmic and ENT products, Total Parenteral nutrition, Dialysis fluid

Tablets: Production of tablets, additives and components for compression, forms of compressed tablets, evaluation. Tablet coating: Sugar coating, film coating, air suspension coating, film defects.

filling operation and equipment employed. Soft gelatin capsules: Manufacture, processing and quality control.

Packaging technology: Types of containers; materials used, closures, unit dose packaging, strip packaging materials, packaging of solid, parenterals and Ophthalmic dosage forms.

Unit 4

Biopharmaceutics: Fundamental principles and concepts, Bioavailability, Bioequivalence and inequivalence, Chemical equivalence, therapeutic equivalence etc. Drug Absorption: Mechanisms, physio-chemical, biological and dosage form considerations in gastrointestinal drug absorption.

Drug disposition: Distribution in blood, plasma-protein binding, cellular distribution, drug penetration to cell, drug excretion -renal, biliary, salivary and biotransformation. **Bioavailability:** Introduction, comparative bioavailability, Methods of estimation of bioavailability

Pharmacokinetics: Introduction, importance in bioavailability and clinical practice and concepts, Terminologies used.

Absorption, distribution, metabolism and excretion of drugs. Biological half-life, apparent volume of distribution, Fluid compartments and circulatory system.

Controlled Drug Delivery systems: Introduction, terminology, Drug targeting, Design and fabrication of oral controlled release drug delivery system. Introduction to implantable and transdermal therapeutic system.

Sustained action dosage form: Drug replacement rate, unit drug dose, mechanisms, formulation and manufacture of sustained action dosage form.

Targeted drug Delivery: Concepts and approaches advantages and disadvantages, introduction to liposomes, niosomes, nanoparticles, monoclonal antibodies and their application

Unit 5

AROMATIC COMPOUNDS: Structure and resonance of benzene, aromatic character, mechanism of electrophilic aromatic substitution, Orientation effects in electrophilic substitution, nucleophilic aromatic substitution.

Preparation, properties and actions of: Phenols, Sulphonic acid and derivatives, Carboxylic acids, Carboxamides, Nitro compounds, amines, diazonium salts, aryl halides and ketones.

Poly nuclear aromatic hydrocarbons: Naphthalene, Phenanthrene and Anthracene.

Heterocyclic compounds: Study of fundamentals of heterocyclics,

STEROIDS: Nomenclature, Stereochemistry, Classification, Isolation methods, Chemistry of Cholesterol (Excluding Synthesis), Diosgenin, Stigmastrol and Ergosterol.

CARDIAC GLYCOSIDES: Digoxin, Digitoxin

CORONARY DILATERS: Glyceryl trinitrate, Isosorbide dinitrate, Dipyridamole,

ANTILIPIDIMIC AGENTS: Theofibrate, Clifbrate, Probucol, Gemfibrozil, Lovastatin.

ANTI FIBRILLATORY AGENTS: Quinidine SO₄

ANTIARRHYTHMIC AGENTS: Procainamide, Mexiletine, Flecainide,.

HYPOTENSIVE AGENTS: Methyl dopa, Clomidine, Guanidine, Propranolol, Minoxidil, Nitroprusside

Classification, Structure and uses:

Antibiotics: Penicillin

Aminoglycosides Streptomycin, Gentamycin, Neomycin, Kanamycin, Chloramphenicol, Tetracyclines, Cephalosporines

Antimalarials: Chloroquine phosphate Hcl; Pamaquine, Primaquine, Pentaquine phosphate, Mepacrine Hcl, Proguanil Hcl,.

Anti-Tubercular Drugs: P-Amino salicylic acid, Isoniazide, Pyrazinamide, Ethambutol, Ethionamide.

Medicinal Dyes: Crystal Violet, Brilliant green, Acriflavin, Methylene blue, Malachite green.

Anti-Viral agents: Amantidine Hcl, Idoxuridine, Acyclovir,

Antineoplastic: Mechlorethamine Hcl, Mephalan, Chlormebucil, Busulfan, Triethylene, Melanin, Carmustine,

Antihistaminics: Diphenhydramine, lamotrigine, Dimethindrenate, Pyrilamine maleate, Triplenenamine maleate,

Non-steroidal anti-inflammatory agents: Indomethacin, Tolmetin, Ibuprofen, Diclofenac, Ketoprofen, Naproxen, Auranofin, aspirin, Phenylbutazone

Expectorants & antitussives: Acetylcysteine, Bromohexine, Ammonium chloride, Guaniphesine, Eucalyptol, Benzonatate, Nacapine, Genopropoxyphene,

hypoglycaemic agents: Insulin, Tolbutamide, Chlorthalidamide, Glibenclamide, Glipizide,

Antipyretic analgesics Paracetamol, Acetanalide, salicylamide, Benorylate phenozone Dipyron
psychoactive drugs: Triflupromazine, Haloperidul, Diazepam, Oxazepam, Alprozolam,

Unit 6

Pharmacology

Definition, scope and branches of Pharmacology, Routes of drug administration and drug delivery systems, bioavailability and biotransformations, metabolizing enzymes as targets of drug action (induction and inhibition), Mechanisms of drug action, drug receptors and cellular signaling systems, Drug antagonism and synergism, Drug dependence and related conditions, Pharmacovigilance, Adverse Drug Effects and their monitoring, Iatrogenic Diseases, Pharmacogenetics and Pharmacoeconomics

ANS: Cholinergic receptors, cholinergic drugs (Parasympathomimetics, anticholinesterases), anticholinergic drugs. Adrenoceptors, sympathomimetics, adrenoceptor blockers and adrenergic neurone antagonists

Drug action on autonomic ganglia (ganglionic stimulants, ganglion blocking agents).

Neuromuscular blocking agents and centrally acting muscle relaxants

Autocoids: Histamine, Antihistaminics

Serotonin, agonists and antagonists

CNS: Synaptic transmission in CNS, General Anesthesia, Hypnotic and Sedatives, Alcohol, Anti-convulsants, Psychopharmacological agents, Antipsychotics, Anxiolytics, Antidepressants, Antiparkinsonian drugs, Non-steroidal Analgesics, anti-inflammatory and anti-pyretic agents, drugs used in gout, DMARDs.

Drugs acting on cardiovascular system

Cardiac glycosides and inotropic agents used in CIIF, Anti-arrhythmic agents, Anti-hypertensive agents, Coronary vasodilators and drugs used in angina, Hypolipidemic drugs., Fibrinolytic agents.

Chemotherapy: General principles of Chemotherapy, Sulfonamides, Quinolones, aminoglycosides, tetracyclines, penicillines, cephalosporins and macrolide antibiotics, Antiprotozoal drugs, Antimalarials, Antiamoebics, Antifungal and antiviral drugs, Anti-helminthics, Chemotherapy of Tuberculosis and leprosy.

Chemotherapy of cancer, Immunomodulators

Pharmacology of endocrine system: Pituitary hormones, Thyroid, antithyroid drugs, Insulin, Oral hypoglycemics and glucagons, Adrenocortical steroids and their antagonists Sex hormones, contraceptives and drugs used in fertility, Drugs regulating calcium homeostasis.

Drugs acting on the blood and blood forming agents: Coagulants, Anticoagulants, Hametিনics (Iron, vitamin B2 and Follic acid), Plasma Expanders.

Diuretics

Drugs acting on gastrointestinal system: Purgatives, Antidiarrhoeal drugs, Antiacids and antiemetics, Digestants

Drugs acting on respiratory system: Expectorants, Antitussives. Drugs used for cough and bronchial asthma

Bioassays: General principles and methods of Bioassays, Official methods of bioassay: Insulin, Heparin, Oxytocin, d-Tubocurarine, Evaluation of new drugs: Acute, subacute and chronic toxicity

tests, Teratogenicity & Carcinogenicity, Clinical trials.

Unit 7

Introduction to different group of plant constituents and their tests.

Different systems of medicine practiced in India with specific reference to Unani, Ayurvedic and Homoeopathic medicines

Natural pesticides and insecticides.

Classification and chemistry of carbohydrates.

Study of drugs dealing with biological sources, geographical distribution, collection, chemical constituents, chemical tests for identity, substitutes, adulterants and uses of following drugs; Starches, Acacia, Tragacanth, Sterculia, Guar gum,

Study of Lipids, their chemistry, classification and biogenesis of lipid containing drugs Biological source, chemical constituents, tests for identity and use of the following; Arachis oil, Castor oil, Sesame oil, Cotton seed oil, Olive oil

Drugs of animal origin: Shellac, Cochineal, Wool fat.

Tannin containing drugs: Catechu (Black and pale), Tannic acid, Myrobalan,

General study of formation of secondary metabolites. Biogenesis of primary metabolites and importance of photosynthesis in formation of primary metabolites and their relationship to the formation of secondary metabolites (Calvine cycle, TCA cycle, Shikimic acid pathway, Embden Merrhoffs pathway, Acetate hypothesis,

Study of drugs containing alkaloids: Nature, occurrence, Chemistry and Biosynthesis.

Tropane alkaloids: Belladonna, Hyoscymus, Stramonium, Duboisia.

Quinoline alkaloids: Cinchona

Isoquinoline alkaloids: Opium, Ipecac.

Alkaloidal Amines: Ephedra, Colchicum

Methods of plant extraction and chromatographic techniques as applicable to Phtopharmacuticals.

Study of volatile oil containing following drugs with regard to the nature, occurrence, chemistry, biogenesis and Pharmacognostic study of turpentine, Mentha,

Cinnamon, Lemon grass, Caraway, Dill, spearmint, Clove, Star anise, Fennel,

Factors affecting formation of plant drug constituents, Drug adulteration and authentication.

Evaluation of crude drugs

Plant tissue culture techniques and their contribution to phytopharmaceuticals.

Unit 8

Historical background: Drug Legislation in India, Code of Ethics for Pharmacists, Drug Laws:

- a) Prevention of Cruelty Against Animals Act,
- b) Pharmacy Act-1948,
- c) Drugs and Cosmetic Act-1940, Rules 1945,
- d) Narcotic Drugs and Psychotropic Substance Act, and Rules thereunder,
- e) Drugs and Magic Remedies (Objectionable Advertisements) Act 1954,

- f) Medicinal and Toilet preparations (Excise duties) Act-1955, Rules-1976,
- g) Poisons Act,
- i) Indian Patents Act, 1970 with recent amendments,
- h) The Drug (prices control) order, 1995,
- j) The Insecticides Act,
- k) Prevention of Food Adulteration, Act and Rules thereunder