AIIMS CRE

PHARMACIST

SYLLABUS

AIIMS Pharmacist Exam Pattern (CRE-2025)

The selection for Pharmacist posts will be through a Computer Based Test (CBT). The key details of the exam pattern are as follows:

Feature	Details
Total Duration	90 minutes (1.5 hours)
Total Questions	100 Multiple Choice Questions (MCQs)
Total Marks	400 Marks
Marking Scheme	+4 for each correct answer
Negative Marking	-1 for each incorrect answer (1/4th of the marks for the question)
Qualifying Marks	⇒ UR/EWS: 40% ⇒ OBC: 35% ⇒ SC/ST: 30%
Language of Exam	English only, as a degree/diploma in a technical domain is required.

-: Structure of the Question Paper :-

The 90-minute CBT will be divided into two main parts:

Part 1: General Paper (20 Questions, 80 Marks)
This section will cover non-technical subjects and is common for all posts.

- ⇒ **Subjects: General Knowledge, Aptitude, and Knowledge of Computers.**
- ⇒ **Total MCQs: 20**
- ⇒ **Total Marks: 80**

Part 2: Domain Specific (Pharmacy) (80 Questions, 320 Marks)
This is the core section for Pharmacist candidates and will test your knowledge in the field of Pharmacy.

- ⇒ **Subjects: The syllabus will be in accordance with the educational qualification, which is a Diploma or Degree in Pharmacy.**
- ⇒ **Total MCQs: 80**
- ⇒ **Total Marks: 320**

PART - A

General Subjects

- **General Intelligence & Reasoning:**
  - Analogies (Semantic, Symbolic, Number)
  - Classification (Number, Letter, GK based)
  - Series (Number, Alphabet, Mixed)
  - Coding and Decoding
  - Blood Relations & Family Tree
  - Direction Sense Test
  - Logical Venn Diagrams
  - Syllogism
  - Statement and Conclusions
  - Non-Verbal Reasoning (Paper folding, Mirror images, Embedded figures)
- **General Awareness & Current Affairs:**
  - **Current Events:** National and International Summits, Awards, Sports Events, Major Government Schemes.
  - **History:** Indian Freedom Struggle, Ancient, Medieval, and Modern Indian History.
  - **Geography:** Indian and World Geography, Physical features, Rivers, Dams, National Parks.
  - **Polity:** Indian Constitution, Fundamental Rights, Key Articles, Political structure.
  - **Economy:** Basic Economic terms, Indian Economy, Five Year Plans, Budget.
  - **Static GK:** Books and Authors, Important Days, Countries and Capitals, Arts and Culture.
- **Quantitative Aptitude:**
  - Number System & Simplification
  - Percentage, Average, Ratio & Proportion
  - Profit and Loss, Simple & Compound Interest
  - Time & Work, Pipes & Cisterns
  - Time, Speed & Distance
  - Data Interpretation (Bar Graphs, Pie Charts, Tables)
- **English/Hindi Language Comprehension:**
  - Vocabulary (Synonyms, Antonyms, One-word substitution)
  - Grammar (Error spotting, Fill in the blanks, Tenses, Articles, Verbs)
  - Reading Comprehension
  - Sentence Rearrangement (Jumbled Sentences)
- **Basic Computer Knowledge:**
  - Fundamentals of Computing (Hardware, Software, Input/Output devices)
  - Microsoft Office (Word, Excel, PowerPoint - basic functions and shortcuts)
  - Operating Systems basics
  - Internet, Web Browsers, and Email fundamentals.
  - Common Keyboard Shortcuts.

PART - B

Domain-Specific

1. Pharmaceutics

- **Introduction to Pharmacy**: History and development of the pharmacy profession. Concept of a drug.
- **Dosage Forms**:
  - **Classification**: Detailed study of Solid, Liquid, Semi-solid, and Gaseous dosage forms with examples, advantages, and disadvantages of each.
  - **Formulation Study**: Understanding the formulation of Syrups, Elixirs, Linctuses, Solutions, Suspensions, Emulsions, Ointments, Creams, Pastes, Gels, Suppositories, and Pessaries.
- **Pharmacopoeias**: In-depth look at the Indian Pharmacopoeia (IP), British Pharmacopoeia (BP), and United States Pharmacopeia (USP). Understanding the structure and importance of a monograph.
- **Metrology & Posology**:
  - **Metrology**: Systems of weights and measures, including interconversions.
  - **Posology**: Calculation of doses for infants and children using various formulae (Young's, Dilling's). Dose calculation based on body weight and surface area.
- **Prescriptions**: Parts of a prescription, proper handling, identification of errors, and understanding of common Latin terms.
- **Pharmaceutical Incompatibilities**: Detailed study of physical, chemical, and therapeutic incompatibilities with examples and methods to overcome them.
- **Unit Operations (Pharmaceutical Engineering)**:
  - **Size Reduction**: Principles and equipment (Hammer Mill, Ball Mill, Fluid Energy Mill).
  - **Size Separation**: Sieves, standards for powders as per IP, equipment (Sieve Shaker, Cyclone Separator).
  - **Mixing**: Principles and equipment for liquids, powders, and semi-solids (Propeller Mixer, Double Cone Blender, Triple Roller Mill).
  - **Filtration**: Theory, filter media, filter aids, and equipment (Filter Press, Membrane Filters).
  - **Drying**: Principles and equipment (Tray Dryer, Fluidized Bed Dryer).
  - **Extraction**: Maceration, Percolation, and Continuous Hot Extraction (Soxhlet).
- **Sterile Products**:
  - **Sterilization**: Concepts and methods (Moist Heat/Autoclaving, Dry Heat, Radiation, Gaseous, Filtration). Validation using indicators.
  - **Aseptic Techniques**: Handling and preparation of sterile formulations.
  - **Parenteral Products**: Formulations of injections and infusions.
  - **Ophthalmic Products**: Formulations and requirements for eye drops and ointments.
- **Tablet and Capsule Technology**:
  - **Tablets**: Types (compressed, coated, etc.), excipients, manufacturing methods (wet/dry granulation, direct compression), defects (capping, lamination, etc.), and detailed evaluation tests (weight, hardness, friability, disintegration, dissolution).
  - **Capsules**: Hard and soft gelatin capsules, manufacturing, and filling.
- **Immunological Products**: Study of sera, vaccines, toxoids, and their preparation and storage.
- **Novel Drug Delivery Systems (NDDS)**: Introduction to sustained-release, controlled-release, and targeted drug delivery systems.

2. Pharmaceutical Chemistry

- **Inorganic Chemistry**:

- Sources of impurities in pharmaceuticals.
- **Limit Tests**: Principle and procedure for the limit tests of Chloride, Sulphate, Iron, Lead, and Arsenic as per the Indian Pharmacopoeia.
- **Key Compounds**: Study of medicinal and pharmaceutical importance of inorganic compounds belonging to categories like Antacids, Cathartics, Emetics, and Haematinics. Major physiological ions and electrolytes (ORS).

- **Organic Chemistry**:
  - Fundamentals of organic chemistry.
  - **Nomenclature**: IUPAC naming of organic compounds, with a special focus on heterocyclic systems (e.g., Furan, Pyridine, Quinoline) that form the nucleus of many drugs.
- **Medicinal Chemistry (Chemistry of Therapeutic Agents)**:
  - A detailed study covering the chemical classification, nomenclature, structure, structure-activity relationships (SAR), mechanism of action, and properties of drugs in the following categories:
    - **Drugs Acting on CNS**: Anesthetics (Thiopental), Sedatives & Hypnotics (Barbiturates, Benzodiazepines), Anticonvulsants (Phenytoin), Antipsychotics (Chlorpromazine).
    - **Drugs Acting on ANS**: Sympathomimetics, Adrenergic & Cholinergic antagonists.
    - **Autacoids**: Antihistamines (Diphenhydramine), Prostaglandins.
    - **Cardiovascular Drugs**: Anti-hypertensives (Propranolol, Captopril), Anti-anginals (Nitrates), Anti-arrhythmics (Quinidine), Cardiotonics (Digoxin).
    - **Diuretics**: Thiazides (Hydrochlorothiazide), Loop Diuretics (Furosemide).
    - **Analgesics & Anti-inflammatory Drugs**: Narcotic (Opioid) Analgesics (Morphine) and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) (Aspirin, Ibuprofen).
    - **Hypoglycemic Agents**: Insulin, Sulfonylureas (Tolbutamide), Biguanides (Metformin).
    - **Chemotherapeutic Agents**:
      - Antibiotics: Penicillins, Cephalosporins, Tetracyclines, Aminoglycosides, Macrolides.
      - Sulphonamides: Including Co-trimoxazole.
      - Antitubercular, Antileprotic, Antimalarial, Antifungal, Antiviral, and Anthelmintic drugs.
    - **Antineoplastic (Anti-cancer) Drugs**.
    - **Steroidal Drugs**.

3. Pharmacognosy

- **Introduction**: Definition, history, and scope of Pharmacognosy.
- **Classification of Crude Drugs**: Detailed study of systems of classification: Alphabetical, Morphological, Taxonomical, Chemical, and Pharmacological (Chemotaxonomy).
- **Quality Control of Crude Drugs**:
  - **Adulteration & Substitution**: Different types and methods of detection.
  - **Drug Evaluation**: Organoleptic (sensory), Microscopic (histological), Physical (ash values, extractive values), Chemical (identification tests), and Biological (bioassays) methods.
- **Phytochemistry**:
  - In-depth study of the isolation methods, chemical identification tests, therapeutic effects, and pharmaceutical applications of major phytochemical classes like Alkaloids, Glycosides, Tannins, Volatile Oils, and Resins.
- **Detailed Study of Crude Drugs**: For each category, know the biological source, family, chemical constituents, and primary therapeutic uses of key drugs.

- ◊ **Laxatives**: Aloes, Senna, Castor oil, Ispaghula.
- ◊ **Cardiotonics**: Digitalis, Arjuna.
- ◊ **Carminatives**: Fennel, Ginger, Clove, Cardamom, Cinnamon.
- ◊ **Astringents**: Catechu.
- ◊ **Drugs Acting on Nervous System**: Belladonna, Hyoscyamus, Opium, Ephedra, Nux-vomica.
- ◊ **Antihypertensives**: Rauwolfia.
- ◊ **Antitussives**: Vasaka, Tolu balsam.
- ◊ **Antirheumatics**: Colchicum.
- ◊ **Antitumour**: Vinca.
- ◊ **Antidiabetics**: Pterocarpus.
- ◊ **Diuretics**: Gokhru.
- ◊ **Enzymes**: Papain, Diastase.

- ♦ **Plant Fibres & Surgical Dressings**: Study of fibres used in dressings like Cotton, Silk, and Wool, including their preparation, identification, and standardization.
- ♦ **Traditional Systems of Medicine**: Basic principles and introduction to Ayurveda, Siddha, Unani, and Homeopathy.

4. **Human Anatomy & Physiology**

- ♦ **Scope and Introduction**: Definitions, structure of the animal cell, and elementary tissues of the body (Epithelial, Connective, Muscle, and Nervous tissue).
- ♦ **Skeletal System**: Structure and functions of the skeleton. Classification of bones and joints.
- ♦ **Cardiovascular System (CVS)**:
  - ◊ Structure and functions of the heart, cardiac cycle, heart sounds, ECG basics.
  - ◊ Arteries, veins, and capillaries.
  - ◊ **Blood**: Composition (Plasma, RBC, WBC, Platelets), functions of each component, blood groups (ABO, Rh), and blood coagulation.
- ♦ **Respiratory System**: Anatomy of the respiratory tract, mechanism of respiration.
- ♦ **Digestive System**: Anatomy and physiology of the alimentary canal (mouth to anus), including the role of accessory digestive glands (salivary glands, liver, pancreas).
- ♦ **Nervous System**:
  - ◊ Structure and function of a neuron.
  - ◊ Classification: Central Nervous System (CNS - Cerebrum, Cerebellum, Medulla, Spinal Cord), Peripheral Nervous System (PNS), and Autonomic Nervous System (ANS).
- ♦ **Urinary System**: Anatomy and physiology of the kidney and urinary tract. Structure of a nephron and the process of urine formation.
- ♦ **Endocrine System**: Study of major endocrine glands (Pituitary, Thyroid, Parathyroid, Adrenal, Pancreas) and the physiological role of their hormones.
- ♦ **Reproductive System**: Anatomy of male and female reproductive systems and physiology of menstruation and fertilization.
- ♦ **Sense Organs**: Elementary anatomy and physiology of the eye, ear, skin, nose, and tongue.

5. **Biochemistry and Clinical Pathology**

- ♦ **Biochemistry**:
  - ◊ **Carbohydrates**: Definition, classification, and metabolism (Glycolysis, Krebs Cycle).

- ◊ **Proteins**: Building blocks (amino acids), classification, structure, and functions.
- ◊ **Lipids**: Classification, properties, and functions.
- ◊ **Vitamins**: Classification, sources, functions, and deficiency diseases.
- ◊ **Enzymes**: Definition, classification, properties, and factors affecting enzyme activity.
- ◊ **Minerals**: Role of key minerals in the body.

- ♦ **Clinical Pathology**:
  - ◊ **Blood**: Composition and common laboratory tests. Study of Red Blood Cells (RBCs), White Blood Cells (WBCs), and platelets. Erythrocyte Sedimentation Rate (ESR). Anemia and Leukemia.
  - ◊ **Urine**: Composition of normal urine. Collection methods. Significance of abnormal constituents like albumin, glucose, ketone bodies, blood, and bile pigments in diagnosing diseases.

6. **Health Education & Community Pharmacy**

- ♦ **Concept of Health**: WHO definition, dimensions (Physical, Mental, Social).
- ♦ **Nutrition and Health**: Balanced diet, nutritional deficiency diseases (e.g., Kwashiorkor, Marasmus, Scurvy, Rickets).
- ♦ **Epidemiology**: Concepts of disease causation and transmission.
- ♦ **Communicable Diseases**: Detailed study of the causative agent, mode of transmission, and prevention/control for:
  - ◊ Respiratory infections: Chickenpox, Measles, Influenza, Diphtheria, Whooping Cough, Tuberculosis.
  - ◊ Intestinal infections: Polio, Hepatitis, Cholera, Typhoid, Food Poisoning.
  - ◊ Vector-borne: Malaria, Filaria.
  - ◊ Sexually Transmitted: Syphilis, Gonorrhoea, AIDS.
- ♦ **Demography and Family Planning**: Population problem, methods of contraception.
- ♦ **First Aid**: Emergency treatment for shock, hemorrhage, burns, poisoning, fractures, and snake bites.
- ♦ **Environment and Health**: Water supply (purification), sanitation, disposal of waste, control of arthropods (mosquitoes, flies).
- ♦ **Community Pharmacy**: Role of the pharmacist in public health, patient education, and national health programs. National Immunization Schedule.

7. **Pharmacology & Toxicology**

- ♦ **General Pharmacology**:
  - ◊ **Introduction & Routes of Administration**: Scope, definitions, and comparison of various drug administration routes.
  - ◊ **Pharmacokinetics**: The study of drug Absorption, Distribution, Metabolism (Biotransformation), and Excretion (ADME).
  - ◊ **Pharmacodynamics**: Mechanisms of drug action, receptor theory, agonists, antagonists, and dose-response relationships.
- ♦ **Systemic Pharmacology**: A detailed discussion of the mechanism of action, therapeutic uses, and adverse effects of drugs acting on:
  - ◊ Central Nervous System, Autonomic Nervous System, Cardiovascular System, Respiratory System, Gastrointestinal System, and Blood.
- ♦ **Chemotherapy**: The principle of selective toxicity. Detailed pharmacology of antibiotics, sulfonamides, and other antimicrobials, including their mechanism of action, spectrum of activity, and development of microbial resistance.

- **Toxicology**:
  - ◊ General principles of treating poisoning.
  - ◊ Study of systemic antidotes.
  - ◊ Signs, symptoms, and treatment for specific types of poisoning (insecticides, heavy metals, opioids, barbiturates).

8. Pharmaceutical Jurisprudence

- **Origin and Nature of Pharmaceutical Legislation in India**.
- **Code of Pharmaceutical Ethics**: Principles and professional responsibilities.
- **Pharmacy Act, 1948**: Objectives, Pharmacy Council of India (PCI) constitution and functions, State Pharmacy Councils, Registration of Pharmacists.
- **The Drugs and Cosmetics Act, 1940 & Rules, 1945**: The most important act. Detailed study of:
  - ◊ Definitions of key terms (Drug, Misbranded, Adulterated, Spurious).
  - ◊ Administration of the Act (DTAB, DCC, Drug Inspectors).
  - ◊ Provisions for import, manufacture, sale, and labeling of drugs.
  - ◊ **Detailed study of Schedules**: Especially C/C1, G, H, H1, M (GMP), P, and X.
- **The Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954**.
- **Narcotic Drugs and Psychotropic Substances Act, 1985**: Regulations for handling and dispensing controlled substances.
- **Medicinal and Toilet Preparations (Excise Duties) Act, 1955**.
- **Drugs (Price Control) Order (DPCO), latest version**.

9. Drug Store and Business Management (DSBM)

- **Introduction to Commerce**: Forms of business organizations (Sole Proprietorship, Partnership), channels of distribution.
- **Drug House Management**: Site selection, layout design, and legal requirements for establishing a drug store.
- **Inventory Control**:
  - ◊ Objectives and importance of inventory management.
  - ◊ Techniques: ABC (Always, Better, Control) Analysis, VED (Vital, Essential, Desirable) Analysis, and EOQ (Economic Order Quantity).
- **Purchasing and Stocking**: Procedures for drug purchasing, handling purchase orders, and receiving/storing goods.
- **Sales and Marketing**: Sales promotion techniques, customer relationship management.
- **Accounting and Finance**:
  - ◊ Introduction to basic accounting principles, bookkeeping, ledgers.
  - ◊ Understanding financial statements: Profit & Loss Account and Balance Sheet.
  - ◊ Banking services.

10. Hospital & Clinical Pharmacy

- **Hospital Organization**: Definition, functions, and classification of hospitals.
- **Hospital Pharmacy Services**:
  - ◊ Objectives, location, layout, and staffing of a hospital pharmacy.
  - ◊ **Drug Distribution Systems**: Detailed study of In-patient services (Unit Dose Dispensing, Floor Ward

Stock) and Out-patient services.
  - ◊ **Pharmacy & Therapeutics Committee (PTC)**: Its composition, role, and function.
  - ◊ **Hospital Formulary**: Development and maintenance.
- ♦ **Manufacturing**: Sterile and non-sterile manufacturing in a hospital setting.
- ♦ **Clinical Pharmacy**:
  - ◊ Introduction to the concept and scope of clinical pharmacy.
  - ◊ **Medication History Interview**: Techniques for taking an accurate patient drug history.
  - ◊ **Patient Counseling**: Importance, stages, and methods for effective counseling.
  - ◊ **Drug Information Services**: Role of a Drug Information Center.
  - ◊ **Drug Interactions**: Mechanisms and clinical significance of drug-drug, drug-food, and drug-lab test interactions.
  - ◊ **Adverse Drug Reactions (ADRs)**: Definition, classification, reporting, and monitoring.
  - ◊ **Therapeutic Drug Monitoring (TDM)**: Concept and application.

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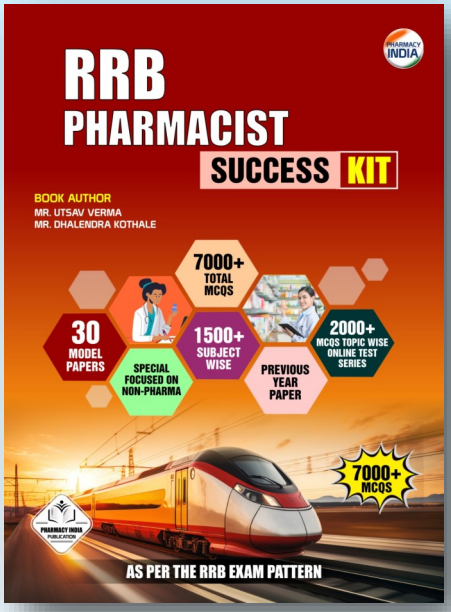

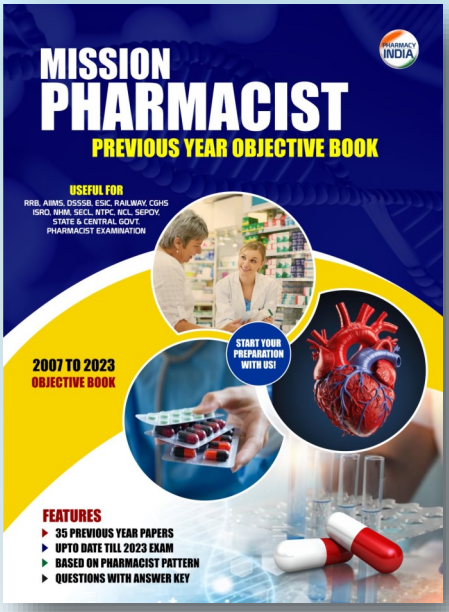

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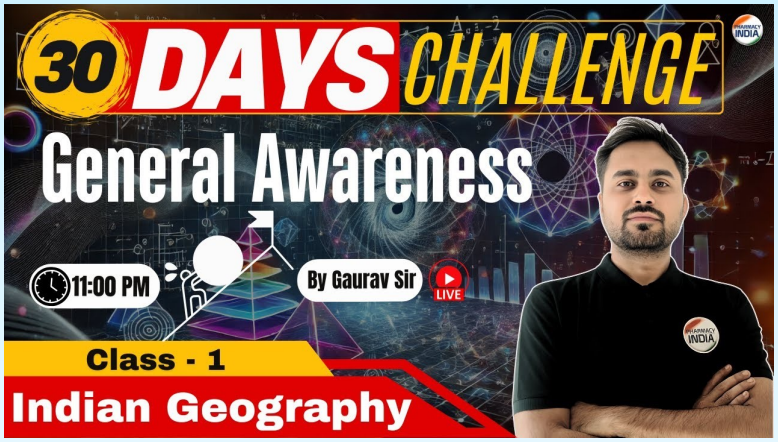

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