

The examination will be a single paper of 100 marks, divided into two parts.

- **Part A: Non-Technical Section** - 25 Marks
- **Part B: Technical (Pharmacy) Section** - 75 Marks

Part A: Non-Technical Section (Total 25 Marks)

This section assesses the candidate's general awareness and aptitude. The topics are standard for competitive exams in Madhya Pradesh.

1. General Knowledge (सामान्य ज्ञान)

- **Current Affairs:** National and International events, major government schemes.
- **Madhya Pradesh GK:** History, geography, culture, tourism, economy, political scenario, major personalities, and welfare schemes of Madhya Pradesh.
- **Indian History:** Major events in ancient, medieval, and modern Indian history, with a focus on the Indian freedom struggle.
- **Indian & World Geography:** Physical, social, and economic geography of India and the world.
- **Indian Polity:** Indian Constitution, Panchayati Raj, administrative structure, fundamental rights, and duties.
- **Indian Economy:** Basic economic concepts, Five Year Plans, and the current state of the Indian economy.
- **General Science & Environment:** Basic concepts of Physics, Chemistry, and Biology relevant to everyday life. Environmental ecology, biodiversity, and climate change.
- **Awards, Honors, Books & Authors.**

2. General Hindi (सामान्य हिन्दी)

- शब्द-रूपांतरण (लिंग, वचन, कारक)
- संधि एवं संधि-विच्छेद
- समास
- उपसर्ग एवं प्रत्यय
- विलोम शब्द एवं पर्यायवाची शब्द
- मुहावरे एवं लोकोक्तियाँ

- वाक्यांश के लिए एक सार्थक शब्द
- वाक्य-रचना एवं वाक्य-शुद्धि
- तत्सम एवं तद्भव शब्द
- अपठित गद्यांश पर आधारित प्रश्न

3. General English

- **Vocabulary:** Synonyms, Antonyms, One-Word Substitution, Idioms & Phrases.
- **Grammar:** Tenses, Articles, Prepositions, Verbs, Voice (Active/Passive), Narration (Direct/Indirect).
- **Sentence Structure:** Error Spotting, Sentence Correction, Sentence Improvement.
- **Reading Comprehension:** A passage followed by questions.
- **Jumbled Sentences (Para jumbles).**

4. General Mathematics (सामान्य गणित)

- Number System
- Simplification and Approximation
- Percentage, Profit & Loss
- Simple and Compound Interest
- Ratio and Proportion
- Average
- Time and Work, Time, Speed & Distance
- Mensuration (Area, Perimeter, Volume)
- Data Interpretation (Bar Graphs, Pie Charts, Tables)

5. General Aptitude / Reasoning (सामान्य अभिरुचि)

- Analogies
- Classification
- Series (Number, Alphabet, Figure)
- Coding-Decoding
- Blood Relations

- Direction Sense Test
- Logical Venn Diagrams
- Syllogism
- Problem Solving and Decision Making

Part B: Technical (Pharmacy) Section (Total 75 Marks)

1. Pharmaceutics

This subject covers the art and science of dosage form design and manufacturing.

- **Introduction to Dosage Forms:**
 - Definitions, classification of dosage forms (Solid, Liquid, Semi-solid, Gaseous).
 - Advantages, disadvantages, and specific applications of each type.
 - **New Drug Delivery Systems (NDDS):** Concepts of sustained release, controlled release, targeted drug delivery, transdermal patches, etc.
- **Pharmacopoeias:**
 - History and significance of the Indian Pharmacopoeia (IP), British Pharmacopoeia (BP), and United States Pharmacopoeia (USP).
 - Structure of a monograph and its importance.
- **Unit Operations:**
 - **Size Reduction:** Principles, objectives, and equipment (Hammer Mill, Ball Mill, Fluid Energy Mill).
 - **Size Separation:** Sieves as per IP standards, sedimentation methods.
 - **Mixing and Homogenization:** Principles, types of mixers (for solids, liquids, semi-solids), equipment like Silvertone mixer, Triple Roller Mill.
 - **Filtration & Clarification:** Theory, types of filters (membrane, sintered glass).
 - **Drying:** Principles and equipment (Tray Dryer, Fluidized Bed Dryer).
- **Sterilization:**
 - Concepts of sterilization, disinfection, antiseptics, and asepsis.
 - **Methods:** Physical (Dry Heat - Hot Air Oven; Moist Heat - Autoclave), Chemical (Gaseous - Ethylene Oxide), Radiation (UV, Gamma), and Mechanical (Filtration).

- **Sterility Testing:** Principles and methods as per IP.
- **Processing of Tablets & Capsules:**
 - **Tablets:** Manufacturing steps, granulation (wet/dry), compression, tablet defects (capping, chipping, picking, sticking, mottling), and evaluation tests (hardness, friability, disintegration, dissolution). Tablet coating (sugar, film, enteric).
 - **Capsules:** Hard and soft gelatin capsules, manufacturing, filling, sealing, and evaluation.
- **Immunological Products:**
 - Preparation, storage, and handling of Sera, Vaccines (live, attenuated, inactivated), and Toxoids. Concept of the cold chain.

2. Pharmaceutical Chemistry (Inorganic & Organic)

This subject deals with the chemical aspects of drugs.

- **Inorganic Chemistry:**
 - **Acids, Bases, and Buffers:** Theories and importance in pharmacy.
 - **Gastrointestinal Agents:** Antacids (systemic vs. non-systemic, combination therapy), Acidifiers, Cathartics (saline type), and Adsorbents.
 - **Major Electrolytes:** Physiological role and preparations of Sodium, Potassium, Calcium, and Chloride (ORS, Ringer's Lactate).
 - **Topical Agents:** Protectives (Talc, Zinc Oxide), Antimicrobials (H_2O_2 , $KMnO_4$), Astringents (Alum).
 - **Quality Control:** Principles of limit tests for Chloride, Sulphate, Iron, Arsenic, and Heavy Metals as per IP.
- **Organic Chemistry (Pharmaceutical Chemistry II):**
 - Nomenclature, chemical structure, stability, storage, and uses of key organic drug classes, including:
 - Anesthetics, Sedatives & Hypnotics, Antipsychotics, Antidepressants.
 - Analgesics (Narcotic and Non-narcotic), NSAIDs.
 - Antihistamines, Antihypertensives, Diuretics.
 - Antibiotics (Penicillins, Cephalosporins, Tetracyclines, Macrolides), Sulphonamides.
 - Antineoplastic, Antiviral, and Antifungal agents.

3. Pharmacognosy

The study of crude drugs from natural sources.

- **Introduction:** Definition, history, and scope.
- **Classification of Crude Drugs:** Alphabetical, Morphological, Taxonomical, Pharmacological, and Chemical systems.
- **Drug Evaluation & Adulteration:** Organoleptic, microscopic, physical, chemical, and biological evaluation methods. Types of adulteration.
- **Study of Plant Constituents:** Occurrence, properties, and identification tests for Alkaloids, Glycosides, Tannins, Volatile Oils, Resins, and Gums.
- **Pharmacological Study of Crude Drugs:**
 - **Laxatives:** Senna, Isabgol, Castor Oil.
 - **Cardiotonics:** Digitalis, Arjuna.
 - **Carminatives & GI Regulators:** Coriander, Fennel, Ginger, Clove, Cardamom.
 - **Astringents:** Catechu.
 - **Drugs acting on CNS:** Opium, Cannabis, Nux Vomica, Belladonna, Ephedra.
 - **Antihypertensives:** Rauwolfia.
 - **Antitussives:** Vasaka, Tolu Balsam.
 - **Antidiabetics:** Gymnema, Pterocarpus.
 - **Antimalarials:** Cinchona.
 - **Antineoplastics:** Vinca.
- **Surgical Fibres & Dressings:** Source, preparation, and identification of Cotton, Silk, Wool.

4. Biochemistry & Clinical Pathology

The study of chemical processes within living organisms.

- **Introduction to Biochemistry.**
- **Macromolecules:**
 - **Carbohydrates:** Classification, chemistry, and related diseases (Diabetes Mellitus).
 - **Proteins:** Amino acids, classification, and structure of proteins.
 - **Lipids:** Classification, chemistry, and related diseases (Atherosclerosis).
- **Vitamins, Minerals, and Water:** Their biochemical roles and deficiency diseases.

- **Enzymes:** Definition, classification, and factors affecting enzyme activity.
- **Clinical Pathology:**
 - **Blood:** Composition, blood cell counts (normal and pathological values).
 - **Urine:** Composition of normal urine and pathological constituents (glucose, ketones, proteins, bile salts).

5. Human Anatomy and Physiology (HAP)

The study of the human body's structure and function.

- **Introduction:** Scope, definition of terms, structure of the cell.
- **Tissues of the Body:** Epithelial, Connective, Muscular, Nervous.
- **Skeletal System:** Bones, joints, and their functions.
- **Cardiovascular System:** Heart structure, cardiac cycle, blood vessels, blood pressure, composition and functions of blood.
- **Respiratory System:** Organs of respiration, mechanism of breathing.
- **Digestive System:** Anatomy and physiology of the GI tract and accessory organs.
- **Nervous System:** Structure of neurons, classification of CNS and PNS.
- **Urinary System:** Kidneys, ureters, bladder, and physiology of urine formation.
- **Endocrine System:** Major glands and their hormones.

6. Health Education & Community Pharmacy

Focuses on public health and the role of the pharmacist.

- **Concepts of Health:** Definitions, indicators of health, concept of disease.
- **Epidemiology & Disease Control:** Definitions, modes of transmission, and control of communicable diseases (Tuberculosis, Hepatitis, Malaria, HIV/AIDS).
- **Non-Communicable Diseases:** Causative agents and prevention of Cancer, Diabetes, and Cardiovascular diseases.
- **First Aid:** Emergency treatment for shock, burns, poisoning, fractures.
- **Demography & Family Planning:** Different methods (natural, chemical, mechanical, hormonal).
- **Nutrition and Health:** Balanced diet, vitamins, minerals.
- **Immunization:** National Immunization Schedule, concept of immunity.

7. Dispensing Pharmacy

The practical aspect of preparing and dispensing medications.

- **Prescriptions:** Parts of a prescription, handling, and reading.
- **Incompatibilities:** Physical, chemical, and therapeutic incompatibilities with examples and correction methods.
- **Posology:** Dose calculation for adults and children (based on age, weight, and body surface area).
- **Dispensed Preparations:**
 - **Liquid Oral Dosage Forms:** Syrups, Elixirs, Linctus, Solutions.
 - **Biphasic Liquids:** Suspensions and Emulsions (theory of emulsification, HLB scale).
 - **Semi-Solid Dosage Forms:** Ointments (bases), Creams, Pastes, Gels.
 - **Sterile Dosage Forms:** Parenteral (Injections) and Ophthalmic preparations.

8. Pharmacology & Toxicology

The study of drug action and adverse effects.

- **Introduction:** Scope, routes of drug administration.
- **Pharmacokinetics:** Processes of Absorption, Distribution, Metabolism, and Excretion (ADME).
- **Pharmacodynamics:** Mechanism of drug action, receptors, agonists, antagonists.
- **Pharmacological Classification and Study of Drugs Acting on:**
 - **Central Nervous System (CNS):** General and local anesthetics, analgesics, antipyretics, sedatives, hypnotics, anti-convulsants.
 - **Autonomic Nervous System (ANS):** Cholinergic and Adrenergic drugs.
 - **Cardiovascular System (CVS):** Antihypertensives, anti-arrhythmics, drugs for angina.
 - **Respiratory System:** Antitussives, expectorants, bronchodilators.
 - **Blood & Blood Forming Organs:** Anticoagulants, haematinics.
 - **Hormones:** Oral contraceptives, corticosteroids, antidiabetic drugs.
 - **Chemotherapy:** Antibiotics, antivirals, antifungals.

9. Pharmaceutical Jurisprudence

The study of laws related to pharmacy.

- **Origin and Nature of Pharmaceutical Legislation in India.**

- **Key Acts and Rules:**
 - **The Pharmacy Act, 1948:** Objectives, constitution and functions of PCI and State Pharmacy Councils.
 - **The Drugs and Cosmetics Act, 1940 and Rules, 1945:** Objectives, definitions, and detailed study of Schedules (G, H, H1, X, M, P, etc.).
 - **The Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954.**
 - **The Narcotic Drugs and Psychotropic Substances Act, 1985.**
- **Pharmaceutical Ethics:** A brief study of the Code of Pharmaceutical Ethics.

Study Tip: For comprehensive preparation, refer to standard textbooks for D.Pharma and B.Pharma. Focus on understanding the core concepts, classifications, examples, and practical applications relevant to the daily work of a pharmacist.



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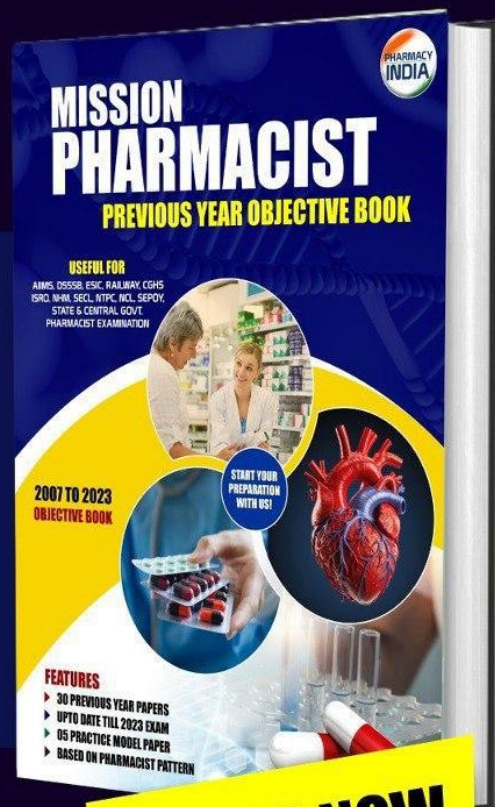
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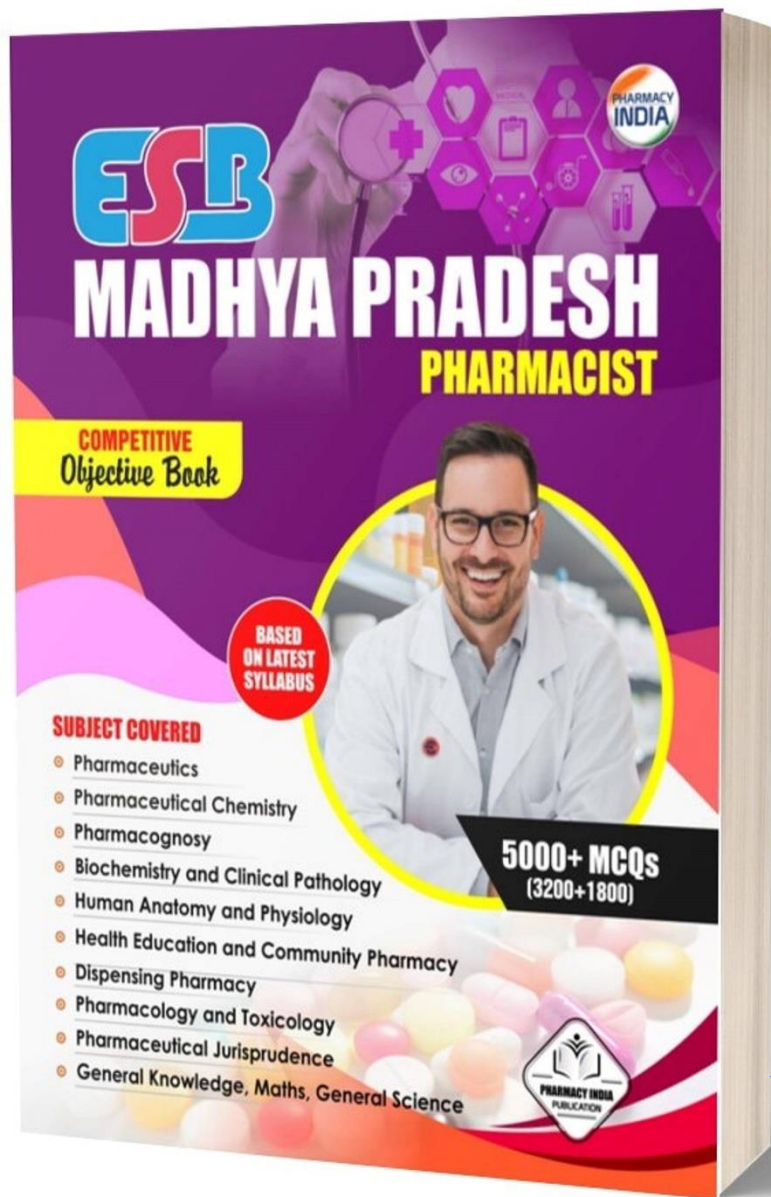
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