RRB PHARMACIST

SYLLABUS

RRB Pharmacist Exam Pattern :-

Apart from the RRB Pharmacist Syllabus, going through the exam pattern is also essential for the aspirants. This exam will be conducted in a Computer-based Test (CBT) mode for a total of 100 marks. Check the comprehensive exam pattern for RRB Pharmacist Recruitment here:

- There will be 100 objective-type MCQ questions in the exam, which candidates will have to answer within 90 minutes.
- The exam will be divided into four sections: General Science, General Intelligence, General Awareness, Professional Ability and General Arithmetic.
- On each correct answer, candidates will be awarded 1 mark
- There is a negative marking of 1/3rd mark on each wrong answer.

EXAM PATTERN OF FINAL RRB PHARMACIST EXAM

S.No.	Exam Type	Subjects	Questions	Marks	Exam Duration
1.	Multiple Choice Questions	Professional Ability	70	70	1.5 Hours
2.		General Science	10	10	
3.		General Awareness	10	10	
4.		General Intelligence	10	10	
		TOTAL	100	100	

RAILWAY PHARMACIST SYLLABUS

PART - I

Pharma Subjects
1. Pharmaceutics
2. Pharmaceutical Chemistry
3. Pharmacognosy
4. Biochemistry And Clinical Pathology
5. Human Anatomy and Physiology
6. Health Education and Community Pharmacy
7. Pharmacology & Toxicology
8. Pharmaceutical Jurisprudence
9. Drug Store and Business Management
10. Hospital and Clinical Pharmacy

Non–Pharma Subjects
1. General Awareness
2. General Intelligence & Reasoning
3. General Arithmetic
4. General Science

PART - II

S.No.	Subjects	Syllabus
1.	**General Arithmetic's**	Number systems, BODMAS, Decimals, Fractions, LCM and HCF, Ratio and Proportion, Percentages, Mensuration, Time and Work, Time and Distance, Simple and Compound Interest, Profit and Loss, Algebra, Geometry, Trigonometry, Elementary Statistics, Square Root, Age Calculations, Calendar & Clock, Pipes & Cistern
2.	**General Intelligence and Reasoning**	Analogies, Alphabetical and Number Series, Coding and Decoding, Mathematical operations, Relationships, Syllogism, Jumbling, Venn Diagram, Data Interpretation and Sufficiency, Conclusions and Decision Making, Similarities and Differences, Analytical reasoning, Classification, Directions, Statement – Arguments and Assumptions etc.
3.	**General Awareness**	Knowledge of Current affairs, Indian geography, culture and history of India including freedom struggle, Indian Polity and constitution, Indian Economy, Environmental issues concerning India and the World, Sports, General scientific and technological developments etc.
4.	**General Science**	Physics, Chemistry and Life Sciences (up to 10th Standard CBSE syllabus).

PHARMACEUTICS

1. Introduction to Pharmacopoeias
2. Metrology
3. Packaging of pharmaceuticals
4. **Unit Operations -** Size Reduction, Size Separation, Mixing and Homogenization, Clarification and Filtration, Extraction and Galenicals, Distillation, Drying.
5. Sterilization
6. Study of immunological products like sera, vaccines, toxoids & their preparations.
7. **Dispensing Pharmacy:** Prescriptions, Incompatibilities in prescriptions, Posology.
8. **Dispensed Medications**
   (I) Solid Dosage Forms: Powders, Tablets, Capsules
   (II) Liquid oral Dosage Forms:
   a. Monophasic - Mixtures and concentrates, Syrups, Elixirs, Gargles, Mouthwashes, Throat-paints, Douch es, Ear Drops, Nasal drops/sprays, Liniments, Lotions.
   b. Biphasic Liquid Dosage Forms: Suspensions, Emulsions.
   (III) Semi-Solid Dosage Forms: Ointments, Pastes, Jellies, Suppositories and pessaries.
9. Dental and cosmetic preparations
10. Sterile Dosage forms: Parenterals, Ophthalmic products.

PHARMACEUTICAL CHEMISTRY

1. **(A) Acids, bases and buffers:** Boric acid, Hydrochloric acid, Strong Ammonium hydroxide, Calcium hydroxide, Sodium hydroxide and official buffers.
   (B) Antioxidants: Hypophosphorous acid, Sulphur dioxide, Sodium bisulphate, Sodium meta bisulphite, Sodium thiosulphate. Nitrogen and Sodium nitrite.
   (C) Gastrointestinal agents: Acidifying agents, Antacids, Protective and Adsorbents, Saline cathartics.
   (D) Topical Agents: Protective, Antimicrobials and Astringents, Sulphur and its compounds, Astringents
   (E) Dental Products
   (F) Inhalants
   (G) Respiratory stimulants
   (H) Expectorants and Emetics
   (I) Antidotes
2. **Major Intra and Extra-cellular electrolytes:**
   (A) Electrolytes used for replacement therapy
   (B) Physiological acid-base balance and electrolytes used
   (C) Combination of oral electrolyte powders and solutions.
3. Inorganic official compounds of Iron, lodine and Calcium, Ferrous Sulphate and Calcium Gluconate.
4. Radiopharmaceuticals and contrast media
5. Quality control of Drugs and pharmaceuticals
6. Identification tests for cations and anions as per Indian Pharmacopoeia.
7. Introduction to the nomenclature of organic chemical systems with particular reference to hetero-cyclic system containing up to 3 rings.
8. The chemistry of following pharmaceutical organic compounds covering their nomenclature, chemical struc-

ture, uses and the important physical and chemical properties - Antiseptics and Disinfectants ,Sulphonamides, Antileprotic Drugs, Anti-tubercular Drugs, Antimoebic and Anthelmintic Drugs, Antibiotics, Antifungal agents, Antimalarial Drugs, Tranquilizers, Hypnotics, General Anaesthetics, Antidepressant Drugs, Analeptics, Adrenergic drugs, Adrenergic antagonist, Cholinergic Drugs, Cholinergic Antagonists, Diuretic Drugs, Cardiovascular Drugs, Hypoglycemic Agents, Coagulants and Anti coagulants, Local Anaesthetics, Histamine and Anti-histaminic Agents, Non-steroidal anti-inflammatory agents, Thyroxine and Antithyroids, Diagnostic Agents, Anticonvulsants, cardiac glycosides, Antiarrhythmic, Antihypertensives & Vitamins, Steroidal Drugs, Anti-Neoplastic Drugs can

PHARMACOGNOSY

1. Definition, history and scope of Pharmacognosy including indigenous system of medicine.
2. Various systems of classification of drugs of natural origin.
3. Adulteration and drug evaluation; significance of Pharmacopeial standards.
4. Brief outline of occurrence, distribution, outline of isolation, identification tests, therapeutic effects and pharmaceutical application of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.
5. Occurrence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of following categories of drugs.
   (a) Laxatives- Aloes, Rhubarb, Castor oil Ispaghula, Senna.
   (b) Cardiotonics - Digitalis, Arjuna. (c) Carminatives & G.I. regulators: Umbelliferous fruits, Coriander, Fennel Ajowan, Cardamom, Ginger, Black pepper, Asafoetida, Nutmeg, Cinnamon, Clove.
   (d) Astringents - Catechu.
   (e) Drugs acting on nervous system: Hyoscyamus, Belladonna, Aconite, Ashwagandha, Ephedra, Opium, Cannabis, Nux-vomica.
   (f) Antihypertensive - Rauwolfia.
   (g) Antitussives - Vasaka, Tolu balsam, Tulsi.
   (h) Antirheumatics- Guggal, Colchicum.
   (i) Antitumour - Vinca.
   (j) Antileprotics- Chaulmoogra oil
   (k) Antidiabetics- Pterocarpus, Gymnema sylvestro.
   (l) Diuretics- Gokhru, Punarnava,
   (m) Antidysenterics- Ipecacuanha,
   (n) Antiseptics and disinfectants- Benzoin, Myrrh, Neem, Curcuma.
   (o) Antimalarials- Cinchona.
   (p) Oxytocics- Ergot
   (q) Vitamins- Shark liver oil and Amla.
   (r) Enzymes- Papaya, Diastase, Yeast
   (s) Perfumes and flavoring agents- peppermint oil, Lemon oil, orange oil, lemon grass oil, sandalwood
   (t) Pharmaceutical aids- Honey, Arachis oil starch, kaolin, pectin, olive oil Lanolin, Beeswax, Acacia, Tragacanth, sodium Alginate, Agar, Guar gum, Gelatin.
   (u) Miscellaneous- Liquorice, Garlic, picrorrhiza, Diascorea, Linseed, Shatavari, shankhpushpi, pyrethrum, Tobacco.
6. Collection and preparation of crude drugs for the market as exemplified by ergot, opium, rauwolfia, digitalis and senna.
7. Study of source, preparation and identification of fibers used in sutures and surgical dressings cotton, silk, wool and regenerated fibers.

BIOCHEMISTRY AND CLINICAL PATHOLOGY

1. **Introduction to Biochemistry.**
2. Proteins & Amino Acids
3. Brief chemistry and role of carbohydrates, classification, qualitative tests, Diseases related to carbohydrate metabolism.
4. Brief chemistry and role of lipids, classification and qualitative tests. Diseases related to lipids metabolism.
5. Brief chemistry and role of vitamins and coenzymes 6. Role of minerals and water in life processes.
6. Enzymes
7. Brief concept of normal and abnormal metabolism of proteins, carbohydrate and lipids.
8. Introduction to pathology of blood and urine
   (a) Lymphocytes and platelets, their role in health and disease
   (b) Erythrocytes-Abnormal cells and their significance
   (c) Abnormal constituents of urine and their significance in diseases.

HUMAN ANATOMY AND PHYSIOLOGY

1. **Scope of Anatomy and physiology:** Definition of various terms used in Anatomy.
2. Structure of cell function of its components
3. Elementary Tissues
4. Structure and function of Skelton.
5. Composition of blood functions of blood elements.
6. Name and functions of lymph glands.
7. Structure and functions of various parts of the heart.
8. Various parts of respiratory system and their functions, physiology of respiration.
9. Various parts of urinary system and their functions, structure and functions of kidney.
10. Structure of skeletal muscle, physiology of muscle contraction
11. Various parts of central nervous system, brain and its parts, functions and reflex action.
12. Elementary knowledge of structure and functions of the organs of taste, smell ear, eye and skin. Physiology of pain.
13. Digestive system
14. Endocrine glands and Hormones
15. Reproductive System

HEALTH EDUCATION AND COMMUNITY PHARMACY

1. Concept of health
2. Nutrition and health
3. Demography and family planning
4. First aid
5. Environment and health
6. Fundamental principles of microbiology
7. Communicable diseases: Causative agents, mode of transmission and prevention.
   (a) Respiratory infections- chicken pox, measles, influenza, diphtheria, whooping cough and tuberculosis.

(b) Intestinal infection: poliomyelitis, Hepatitis, cholera, Typhoid food poisoning, Hookworm infection.

(c) Arthropod borne infections: plague, Malaria, filariasis

(d) Surface infection: Rabies, Trachoma, Tetanus, Leprosy.

(e) Sexually transmitted diseases: Syphilis, Gonorrhoea, AIDS.

8. **Non-communicable diseases:** Causative agents, prevention, care and control: Cancer, Diabetes, Blindness, Cardiovascular dis-

PHARMACOLOGY & TOXICOLOGY

ease.

1. Introduction to pharmacology, scope of pharmacology.
2. Routes of administration of drugs, Various processes of absorption of drugs and the factors affecting them. Metabolism, distribution and excretion of drugs.
3. General mechanism of drugs action and their factors which modify drugs action.
4. Pharmacological classification of drugs. The discussion of drugs should emphasize the following aspects:

(i) Drugs acting on the central Nervous system:

a. General anesthetics- adjunction to anesthesia, intravenous anesthetics.

b. Analgesic antipyretics and non-steroidal anti-inflammatory drugs- Narcotic analgesics, Antirheumatic and anti-gout remedies, Sedatives and Hypnotics, psychopharmacological agents, anticonvulsants, and analeptics.

c. Centrally acting muscle relaxants and anti-parkinsonism agents.

(ii) Local anesthetics.

(iii) Drugs acting on autonomic nervous system

a. Cholinergic drugs, Anticholinergic drugs, anticholinesterase drugs.

b. Adrenergic drugs and adrenergic receptor blockers.

c. Neuron blockers and ganglion blockers. d. Neuromuscular blockers, used in myasthenia gravis.

(iv) Drugs acting on eye

(v) Drugs acting on respiratory system

(vi) Antacids

(vii) Drugs acting on Cardiovascular drugs

(viii) Drugs acting on the blood and blood-forming organs.

(ix) Drugs affecting renal function: Diuretics and anti-diuretics.

(x) Hormones and hormone antagonists

(xi) Drugs acting on digestive system

(xii) Chemotherapy of microbial diseases

(xiii) Chemotherapy of protozoal diseases

(xiv) Chemotherapy of cancer.

(xv) Disinfectants and

PHARMACEUTICAL JURISPRUDENCE

antiseptics.

1. Origin and nature of pharmaceutical legislation in India.
2. Principles and significance of professional Ethics.
3. Pharmacy Act, 1948
4. The Drugs and Cosmetics Act

5. The Drugs and Magic Remedies
6. Narcotic Drugs and psychotropic substances Act, 1985
7. Brief introduction to the study of the following acts:
   (i) Latest Drugs (price control) order in force.
   (ii) Poisons Act 1919(as amended to date)
   (iii) Medicinal and Toilet preparations (excise Duties) Act, 1955 (as amended to date)
   (iv) Medical Tercy Act, 1971(as mination of Pregnanamended to date)

DRUG STORE AND BUSINESS MANAGEMENT

1. **Introduction-** Trade, Industry and commerce, Functions and subdivision of commerce, Introduction to Elements for Economics and Management.
2. Forms of Business Organizations
3. Channels of Distribution.
4. Drug House Management
5. Inventory Control
6. Sales promotion, Market Research, Salesmanship, qualities of a salesman, Advertising and Window Display.
7. Banking and Finance
8. Cash Book.
9. General Ledger and Trial Balance.
10. Profit and Loss Account and Balance Sheet.
11. Simple techniques of analyzing financial statements. Introduction to Budgeting.

HOSPITAL AND CLINICAL PHARMACY

1. Hospital definition, Function, classifications based on various criteria, organization, Management and health delivery system in India.
2. **Hospital Pharmacy:**
   a. Definition
   b. Functions and objectives of Hospital pharmaceutical services.
   c. Location, Layout, Flow chart of materials and men.
   d. Personnel and facilities requirements including equipments based on individual and basic needs.
   e. Requirements and abilities required for Hospital pharmacists.
3. Drug Distribution system in Hospitals: a. Out-patient service b. In-patient services- Types of services detailed discussion of unit Dose system, Floor ward stock system, satellite pharmacy services, central sterile services, Bed side pharmacy.
4. **Manufacturing:**
   a. Economical considerations, estimation of demand
   b. Sterile manufacture- large and small volume parenteral, facilities, requirements, layout production planning, man-power requirements.
   c. Non-sterile manufacture- Liquid orals, externals, Bulk concentrates.
   d. Procurement of stores and testing of raw materials.
   e. Nomenclature and uses of surgical instruments and Hospital Equipments and health accessories.

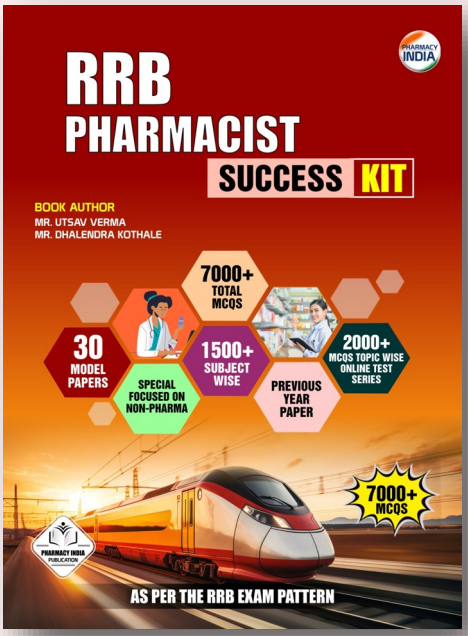
5. P.T.C. (Pharmacy Therapeutic Committee)
6. Hospital Formulary system and their organization, functioning, composition.
7. Drug Information service and Drug Information Bulletin.
8. Surgical dressing like cotton, gauze, bandages and adhesive tapes including their Pharmacopoeial tests for quality.
9. Other hospital supply e.g., V. sets, B.G sets, Ryals tubes, Catheters, Syringes, etc.
10. Introduction to Clinical pharmacy practice
11. **Modern dispensing aspects-** Pharmacists and patient counseling and advice for the use of common drugs, medication history.
12. Common daily terminology used in the practice of Medicine.
13. **Disease, manifestation and Patho-** physiology including salient symptoms to understand the disease like Tuberculosis, Hepatitis, Rheumatoid Arthritis, Cardio-vascular diseases, Epilepsy, Diabetes, Peptic Ulcer, Hypertension.
14. Physiological parameters with their significance.
15. **Drug Interactions:**
    a. Definition and introduction.
    b. Mechanism of Drug Interaction.
    c. Drug-drug interaction with reference to analgesics, diuretics, cardiovascular drugs, gastrointestinal agents, Vitamins and Hypoglycemic agents.
    d. Drug-food interaction.
16. **Adverse Drug Reaction:**
    a. Definition and significance.
    b. Drug-Induced diseases and Teratogenicity.
17. Drugs in Clinical Toxicity
18. Drug dependences, drug abuse, addictive drugs and their treatment, complications.

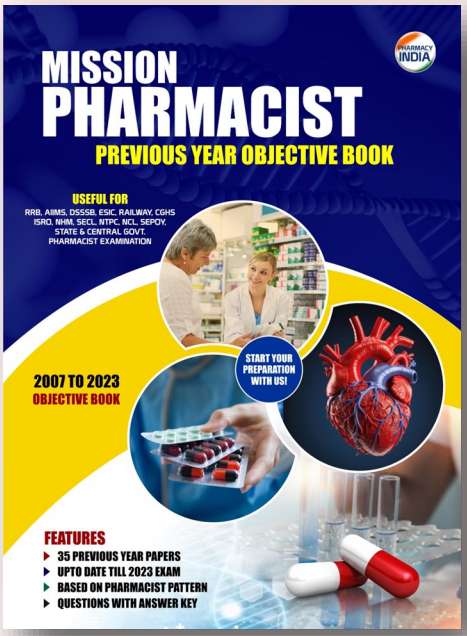




19. Bio-availability of drugs, including factors affecting it.

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