

Syllabus for promotion to Group- B posts - 70% selection and 30% LDCE.

Syllabus for Establishment Rules:

1. Organization of the Personnel Department in Railways objectives functions and policies of Personnel Department.
2. Recruitment and Training, Classification of Services, Recruitment in Different services, Railway Recruitment Boards & Railway Recruitment Cells Compassionate Ground Appointments, Initial & In Service Training, Refresher Courses, Central Training Institutes, Training Centers in Zones, Divisions & Workshops, Training Modules for different posts, Training under Apprentices Act, Online Training, APARs.
3. General conditions of service in Railways, Seniority, Lien, Inter Railway & Inter Division transfers, Deputation, Promotion Policy & methods. Selection, Suitability, Trade Tests, Leave Rules, Pass Rules, Joining Time Reservation policy, HOER, Overtime, Payment of wages, current CPC Pay Rules, Advances in Railways.
4. Manpower planning, Rightsizing & Benchmarking, creation, extension and surrender of posts, creation of posts against new assets, different types of posts including workcharged posts.
5. The Railway Servants (Discipline & Appeal) Rules, 1968 and related instructions.
6. The Railway Services (Conduct) Rules, 1966 and related instructions.
7. Retirement benefits, qualifying service, pension, family pension, commutation gratuity, new pension scheme.
8. Staff welfare, SBF, Railway institutes, Railway schools, Ex-gratia payment, Incentive Bouns Scheme, Staff Grievances Redressal Mechanisms.
9. Industrial relations in Railways, recognized trade unions, industrial disputes. The Industrial Disputes Act, 1947. The Industrial Relations Code, 2020. The Trade Unions Act, 1926, PNM, PREM, JCM, Various Associations & Informal Meetings.
10. The Factories Act, 1948. The workmen's Compensation Act, 1923. Functions of Labour Enforcement Officers, Right to Information Act.
11. The scope of Information Technology in Railway e – office. HRMS, IPAS , LIMBS, ARPAN, CPGRAMS, ANUBHAV etc.

Syllabus for Financial Rules:

1. Parliamentary Control over Railway Finance, Public Accountability, Cannons of Financial Propriety.
2. Railway Budget - Budgetary terms, Types of Budgets, Budget cycle, Demand of Grants, Budgetary and Financial Reviews.
3. Rules of Allocation - Classification of expenditure - Control of expenditure - Responsibility Accounting - Performance Budgeting - Exchequer Control - Financial Results of Working lines.
4. Works Programme - Financial justification of Works - Surveys - Preparation of Estimates - Capital Budget - Control over Capital Expenditure - Reappropriation of Funds.
5. Financial control over Stores Expenditure - Purchase and Stores Keeping Procedure - Inventory Control and ABC Analysis.
6. Financial & Cost Control in Railway Workshops/Sheds/Units.
7. Rules and procedure relating to Tenders and contracts for execution of works and Procurement of Stores, M&P Programme and RSP.
8. Procedure for Possessing and finalizing Audit Objections and Draft Paras.
9. Delegation of Powers.
10. Losses, Frauds and Embezzlements.
11. General Financial Rules
12. Government e-Market (GeM)
13. Classification of Railway Revenue (Earnings)
14. Information Technology in general with specific reference to Railway's IT Applications
15. Taxation matters with special focus on GST & Income Tax
16. Organization of CGA and C&AG
17. Any other topic felt necessary from time to time

Syllabus for 70% Selection for Promotion to Group 'B' post of ASTE in Signalling & Telecommunication Department

Part – A - Professional Subjects

I. Signalling :

- Basics of Signalling
- Principles of Interlocking, Signal Interlocking Plan, Route holding principles, Table of Control
- Colour Light Signal concepts
- Signalling Elements – Relays, Cables, LED Signals, Point Machines, Track Circuits (DC, AC & AFTC), Axle Counters (SSDAC & MSDAC), Block instruments, Integrated Power Supply, Interlocked Level Crossing Gates and Data Loggers
- Automatic Signalling
- Intermediate Block Signalling, BPAC, UFSBI
- RE Modifications
- Relay Interlocking concepts - Metal to Carbon, Metal to Metal, Panel Interlocking and Route Relay Interlocking
- Electronic Interlocking – Principles, Configuration, Interface logic, Application logic, VDU logic, FAT, SAT, Technical System Approval
- Earthing, Lightning and Surge protection arrangements
- Train Protection Systems – TPWS, Kavach
- Centralised Traffic Control (CTC) , Train Management System (TMS)
- Execution of S&T Infrastructure works – Planning, Execution, CRS sanction, Documentation, Testing and Commissioning

II. Telecommunications –

- Outdoor and Indoor Telecom cable system, jointing procedures, and maintenance and fault localisation methods, laying practices and precaution at work site
- Control Communication, OFC based, VoIP based, Emergency Control Communication, Voice Logger, COA
- Telephone Instruments, Signalling principles of Telephone Exchanges, Automatic, ISDN, and VoIP Telephone Exchanges
- PCM-TDM Principles, PD multiplexers, SDH principles and SDH equipment's
- Modulation techniques and radio propagation
- VHF, UHF, Tetra, GSM-R, LTE-R
- OFC Communication systems, OFC Splicing, Measurements and laying practices
- Data Communication and IP networks, IP-MPLS, Data networks of IR, PRS, UTS, FOIS, TMS, NMS, Wi-Fi at stations, Firewalls/UTM, Cyber security and Wireless security
- Public address system, Passenger information systems and VSS

III. Codes & Manuals

- General Rules

- Railways (Opening for Public Carriage of Passengers) Rules
- Indian Railways schedule of dimensions
- Indian Railway Signal Engineering Manual
- Indian Railway Telecom Manual
- Accident Manual
- Block working Manual
- Extracts of Operating manual for Indian Railways, Indian Railways manual of AC Traction Maintenance and Operation and Indian Railways Permanent Way Manual relevant for Signal & Telecom Engineers

IV. Workshop Practices

- Raw material processing
- Workshop Machines and their utilisation
- Overhauling procedure and practices
- Inspection and testing of components
- Testing procedures of Block Instruments , Relays, Point Machines, IPS, EoLB, Track Feed Battery Chargers, EKTs, Control Panels and Mechanical Items
- RDSO approval procedure and Renewal
- Production Management Plan
- Quality control and Safety Practices
- Calibration of instruments and machines
- ISO/IMS Certification for workshops
- Scrap disposal
- Workshop suspense
- Costing of products
- Incentive schemes

Part-B - Official Language

Official Language - Official Language Policy, Act, Rules, Incentive Schemes etc.

Syllabus for 30% LDCE for Promotion to Group 'B' post of ASTE in Signalling & Telecommunication Department

Part – A - General

I. Current Affairs and General Knowledge

- This section would contain questions of general interest and importance, which is acquired by general observation or reading without specific text book study. Subjects of national importance as well as achievements of Railways are also to be covered. The standard of General Knowledge shall not be more rigorous than Matriculate level.

II. General Mathematics

- Arithmetic and Statistical operations, Graphs, Fractions, Percentage, Sampling & Averages
- Geometry – Areas & Volumes up to Higher Secondary /12th Standard level
- Algebra, Simultaneous Equations etc up to Higher Secondary /12th Standard level

III. Physics & Basic Electricity

- Units & Measurements
- Mechanics – Newton's Law of motion, Velocity & Acceleration, Work, Energy, Power
- Mechanical properties of solids and fluids
- Heat & work, expansion of solids, liquids & gases
- Ohm's law, Coulomb's law, Faraday's Law, Voltage, Current & Resistance, Kirchhoff's Laws, Wet & Dry Batteries, Power Factor
- Fleming's Law, Lenz's Law, Simple Motors & Dynamos, Generators, Principle of working of Transformer, Relay, Fuse, Circuit Breaker
- Semi conductor devices – P-N diode, Transistors, FETs, Applications
- Power supply, AC & DC, Rectifiers

IV. Digital Electronics & Information Technology

- Principles of Digital Electronics – Boolean Algebra, Digital Devices and their applications
- Information Technology – Generations, PC specifications, Operating systems – Windows, Linux and Application Software.

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