

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS  
(RAILWAY BOARD)

\*\*\*\*\*

RBE No.: 113/2010

No. E(GP)2006/2/34

New Delhi, dt: 09.08.2010

**The General Managers,  
All Indian Railways and Production Units.**

**Sub: Syllabus for 30% LDCE for promotion to Group'B' post of  
ASTE in Signal & Telecommunication Department of  
Railways/Production Units.**

**Ref: Railway Board's letter No. E(GP)79/2/30/5 dated 9.9.1980.**

-----

A revised syllabus for Limited Departmental Competitive Examination (LDCE) for promotion from Group'C' to Group'B' posts in Signal & Telecommunication Department of Railways/Production Units is enclosed for guidance. This may be given wide publicity and circulated amongst the eligible candidates.

2. The revised syllabus will be effective from the date of issue of this letter. However, LDCEs for which written examinations have already been held or which are at an advanced stage, need not be disturbed.

3. Please acknowledge receipt.

**Encl: As above.**

  
**(B. MAJUMDAR)  
DIRECTOR/ESTT.(GP)  
RAILWAY BOARD**

No. E(GP)2006/2/34

New Delhi, dt: 09.08.2010

Copy for information and necessary action to

- (1) The Director General & ex-officio General Manager, R.D.S.O., Lucknow.
- (2) The CAO, DCW, Patiala
- (3) The CAO, MTP(Rlys.), Mumbai and Chennai
- (4) The Chairman, Railway Recruitment Board:  
Allahabad/Ahmedabad/Ajmer/Bangalore/Bhopal/Bhubaneshwar/Kolkata/  
Chandigarh/Chennai/Gorakhpur/Guwahati/Jammu&Srinagar/Malda/  
Mumbai/Muzaffarpur/Patna/Ranchi/Secunderabad/Trivendrum.
- (5) The Director General, Railway Staff College, Vadodara.
- (6) The Director IRISSET, Secunderabad/IRIMEE.  
Jamalpur/IRIEE, Nasik,/IRICEN, Pune/IRCAMTECH, Gawalior.
- (7) The Railway Liaison Officer, Jeevan Tara Building, Parliament Street, New Delhi.
- (8) The General Secretary, IRCA, New Delhi.
- (9) The C.A.O, COFMOW, Rly. Offices Complex, Tilak Bridge, New Delhi-110002.
- (10) The Secretary, Railway Rates Tribunal (Chennai), 50 MC.Nichola Road, Chetput, Chennai.
- (11) The Exec.Director, CRIS, Safdarjung Rly.Stn.Building, Chanakyapuri, New Delhi.
- (12) The Director (Movement), Railways 17 N.S.Road, Calcutta.
- (13) The Joint Director (Iron & Steel) 3 Koilaghat Street, Calcutta.



**(B. MAJUMDAR)**  
**DIRECTOR/ESTT.(GP)**  
**RAILWAY BOARD**

No. E(GP)2006/2/34

New Delhi, dt: 09.08.2010

Copy forwarded to:

1. The General Secretary, All Indian Railwaymen Federation, Room No. 253, Rail Bhavan, New Delhi (35 copies).
2. The General Secretary, National, Federation of Indian Railwaymen, Room No. 256-E, Rail Bhavan, New Delhi (35 copies)
3. All Members, Departmental Council and National Council and Secretary, Staff Side, National Council, 13-C, Ferozshah Road, New Delhi (90 spares)
4. The Secretary General, Federation of Railway Officers Association, Room No. 256-A, Rail Bhavan, New Delhi (5 spares)
5. The Secretary General, Indian Railway Promotee Officers Association, Room No. 268, Rail Bhavan, New Delhi (35 spares)
6. The General Secretary, All India RPF Association, Room No. 256-D, Rail Bhavan, New Delhi-110001.
7. Railway Board Secretariat Staff Association.

  
For Secretary, Railway Board

Copy to:

PSs to MR, MSR(M), MSR(A)

Sr. PPSs to CRB, FC, MS, MM, MT, ML, ME

PPSs to Secretary, DG/RHS, DG/RPF

PPSs to all Addl. Members.

Dy. C&AG(Railways), Room No. 222, Rail Bhawan.

PSs to AM(Staff), Adv.(Vig.), EDE, EDA, EDE(N), EDE(Res), JS, JS(E), JS(G), ED(E&R), EDE(GC), EDV(E), ED(Signal), EDV(S), EDF(E), ED(T&MPP), EDE(RRB), EDPC-I, DV(P), DE(L), DE(Res), DE(G), D(IH), D(MPP), JDE(R)I&II, JDE(Rep)I&II, DE(D&A), JDE(P&A), DPCI&II, JDE(L), JDE(N), JDE(N)II, DDF(E)I, DDF(E)VI, DDV(A&P), E(NG)I, E(O)III, DDRS(G), DDE(LR)I, Sec(E), PC-III, IV, V & VI, E&R, E(Trg.), E(MPP), V(SS), E(SCT)I&II.

**Syllabus (Revised) for 30% LDCE for Promotion  
Group 'B' ASTE in Signal & Telecommunication Department**

<b>Paper-I</b>		
<b>Maximum Marks 150</b>		<b>Pass Marks 90</b>
<b>Part - I</b>		
<b>General</b>		<b>50 Marks</b>
<b>I. General Knowledge</b>		
<ul style="list-style-type: none"> <li>• This section would contain questions of general interest and importance, which is acquired by general observation or reading with out 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.</li> <li>• Official Language.</li> </ul>		
<b>II. General Mathematics</b>		
<ul style="list-style-type: none"> <li>• Arithmetic and statistical operations, graphs, fractions, percentage, sampling &amp; averages</li> <li>• Geometry - area &amp; volume up to Higher Secondary/12<sup>th</sup> Standard level</li> <li>• Algebra, simultaneous equations etc up to Higher Secondary/12<sup>th</sup> Standard level</li> <li>• Mechanics - Velocity &amp; acceleration, work done, horse power etc up to Higher Secondary/12<sup>th</sup> Standard level</li> </ul>		
<b>III. Strength of Material</b>		
<ul style="list-style-type: none"> <li>• Various Engineering materials and their properties, bearings, stress &amp; strain, fatigue, hardness, corrosion &amp; surface finish</li> </ul>		
<b>IV. Physics &amp; Basic Electricity</b>		
<ul style="list-style-type: none"> <li>• Temperature &amp; measurement</li> <li>• Mechanics - Newton's law of motion, Velocity &amp; Acceleration, Work, Energy, Power, Archimedes's principle etc</li> <li>• Heat &amp; work, expansion of solids, liquids &amp; gases</li> <li>• IC Engines, gas turbine heat recovery &amp; thermal efficiency. Super charging &amp; inter cooling</li> <li>• Ohm's law, Coulomb's law, Faraday's Law, Voltage, Current &amp; Resistance, Wet &amp; Dry Batteries, Power Factor</li> <li>• Simple motors &amp; Dynamos- Principle of Working of Transformer, Relay, Fuse, Circuit Breaker</li> <li>• Power Supply, AC&amp;DC, Rectifiers</li> </ul>		
<b>Part - II</b>		
<b>Professional Subject</b>		<b>100 Marks</b>
<p align="center"><b>Note:</b> - Four questions to be given from each part. Six questions to be answered, three from each part.</p>		
<b>Part A</b>		
<b>Rules &amp; Manuals.</b>		
<p>Rules for Opening of a Railways, Signal Engineering Manual, Telecommunication Engineering Manual, Store Procedures and Practices, AC Traction Manual, Block Working Manual, Schedule of Dimensions, Operation Manual, <i>Disaster Management, Accident</i></p>		

*Manual - Accident Classification, Causes of Accidents and their prevention, Duties of First Official reaching the Accident Site, Enquiries, Failure Analysis & Investigations.*

**Part B**

Fundamental Engineering & Applied Technology, Simple Structures, Dynamics, Simple Machinery, Magnetism, Electricity, Sound, Electrical Machinery and Circuits, Fundamental Electronics & Electronic Circuits, Power Supply Equipment and Systems. *Protection Systems against Lightning & Surges, Principles of Optics & Optical Fibre Cable, Principles of Digital Electronics - Boolean Algebra, Digital Devices and their Applications, Data Communication Principles & Information Technology - Familiarity with PC Specifications, Operating Systems -Windows, Operating and Application software, Basic LAN/WAN & Networking , Intranet/ Internet.*

<b>Paper-II</b>	
<b>Maximum Marks 150</b>	<b>Pass Marks 90</b>
<b>Part - I</b>	
<b>Establishment and Financial Rules</b>	<b>50 Marks</b>
<b>I. Establishment Rules</b>	
<ul style="list-style-type: none"> <li>• General conditions of services of Railway servants including rules regarding leave, joining time, passes etc</li> <li>• Railway service D&amp;A Rules -1968 &amp; amendments</li> <li>• Railway service Conduct Rules -1966 &amp; amendment</li> <li>• Retirement benefits</li> <li>• Payment of wages, allowance &amp; overtime</li> <li>• Labour laws including Payment of Wages Act, Workmen's Compensation Act, Hours of Employment Regulations, Factory Act, Contract Labour Act</li> <li>• Manpower Planning &amp; Training</li> <li>• Welfare measures in Railways</li> <li>• PNM,JCM &amp; PREM</li> </ul>	
<b>II. FINANCIAL RULES</b>	
<ul style="list-style-type: none"> <li>• Parliamentary control over Railway Finance - public accountability, canons of financial propriety</li> <li>• Railway Budget - Budgetary terms, Types of Budgets, Budget cycle, Demand of Grants, Expenditure Classification</li> <li>• Rule for allocation – Classification of Expenditure, Control over expenditure – Responsibility of accounting performance budgeting, Exchequer, General Financial results of working</li> <li>• Work Programme - Financial justification of works, Survey, preparation of estimate, capital budget – Control over expenditure, capital expenditure, re-appropriation</li> <li>• Financial Control over store expenditure - Purchase and stores keeping procedure - inventory control</li> <li>• Financial and cost control in Railway Workshop</li> <li>• Rules and Procedure relating to tenders and contracts for execution of works and procurement of stores, M&amp;P Programme</li> <li>• Procedure for processing and finalizing the audit objections and draft paras</li> <li>• Delegation of Powers</li> </ul>	
<b>Part – II</b>	
<b>Professional Subject</b>	<b>100 Marks</b>
<p><b>Note:</b> - Four questions to be given from each part. Six questions to be answered, minimum one from each part and maximum three a part.</p>	
<b>Part A</b>	
<b>Signaling</b>	
<p>Mechanical &amp; Electrical Interlocking, Interlocking plans and locking tables, Block Signaling, Electro-mechanical and Electrical Signaling, Automatic Signaling, Panel Interlocking, Route Relay Interlocking, Axle Counters, Track Circuits, Automatic Warning System, Train Protection &amp; Warning System (TPWS) and/or Anti Collision Device (ACD), Centralized Traffic Control (CTC), <u>Electronic Interlocking (EI)</u>, <u>Data Loggers &amp; Networking</u>, <u>LED Signals</u>, <u>Block Proving by Axle Counters (BPAC)</u>, <u>Audio Frequency Track Circuits (AFTC)</u>, <u>Integrated Power Supply (IPS)</u>, etc.</p>	

**Part B**

**Telecommunication**

Overhead and underground cable system, control office and way station and emergency control communication equipment, Telephone exchange —automatic, specialized communication and allied equipment like STM, DWDM etc in Railways, comprising HF, VHF and Microwave, GSM-R and/or Tetra for Mobile Train Radio, OFC and Quad cable, Communication in RE area, Data communication & IP Networks, Digital Electronic Exchanges, ISDN, Network Management Systems, networks for PRS, FOIS, TMS, UTS etc, Concept of GPS.

**Part C**

**Workshop Practice** - Raw material, processing, Workshop machines and their utilization, Overhauling Procedure and Practices, Inspection and Testing of components, Testing Procedure, commissioning and measurement, Integration, Testing & Certification of IPS/SMPS, DC-DC Converters, Invertors & Battery Chargers/Float Rectifiers, Block Instruments & Relays, Relay Technology - Different Types of Relays & their working, Block Instruments and Point Machines, Quality Control and Safety Practices.

भारत सरकार  
रेल मंत्रालय (रेलवे बोर्ड)

आईबीई सं. : 113/2010

सं. ई (जीपी)2006/2/34

नई दिल्ली, दिनांक: 09.08.2010

महाप्रबंधक,  
सभी भारतीय रेलों और उत्पादन इकाइयां।

विषय: रेलों/उत्पादन इकाइयों के सिगनल एवं दूरसंचार विभाग में सहायक सिगनल एवं दूरसंचार इंजीनियर के ग्रुप 'बी' पद पर पदोन्नति के लिए 30% सीमित विभागीय प्रतियोगी परीक्षा के लिए पाठ्यक्रम।

संदर्भ: रेलवे बोर्ड का दिनांक 09.09.1980 का पत्र सं. ई(जीपी)79/2/30/5.

रेलों/उत्पादन इकाइयों के सिगनल एवं दूरसंचार विभाग में ग्रुप 'सी' से ग्रुप 'बी' पदों पर पदोन्नति के लिए सीमित विभागीय प्रतियोगी परीक्षा के लिए संशोधित पाठ्यक्रम मार्गदर्शन के लिए संलग्न है। इसका व्यापक प्रचार किया जाए तथा इसे पात्र उम्मीदवारों में परिपत्रित किया जाए।

2. संशोधित पाठ्यक्रम इस पत्र के जारी होने की तारीख से प्रभावी होगा। बहरहाल, सीमित विभागीय प्रतियोगी परीक्षाओं, जिनके लिए पहले ही लिखित परीक्षाएं आयोजित की जा चुकी हैं अथवा जो अग्रिम चरण पर हैं, में फेरबदल की आवश्यकता नहीं है।

3. कृपया पावती दें।

संलग्न: यथोक्त।

बी. मजूमदार

(बी. मजूमदार)

निदेशक, स्थापना (राज. पदो.)

रेलवे बोर्ड