

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

RBE No.: 40/2007

No.E(GP)2005/2/8

New Delhi, dt: 22.03.2007

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

**Sub: Syllabus for 30% LDCE for promotion to Group'B' post of
AME/AWM in Mechanical Department of Railways/Production
Units.**

Ref: Railway Board's letter No. E(GP)79/2/30/3 dated 12.11.1979

A revised syllabus for Limited Departmental Competitive Examination (LDCE) for promotion from Group'C' to Group'B' posts in Mechanical 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

Santosh Mittal
**(SANTOSH MITTAL)
Dy. DIRECTOR, ESTT.(GP)-II
RAILWAY BOARD**

No.E(GP)2005/2/8

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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 IRASET, 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.

Santosh Mittal

(SANTOSH MITTAL)
Dy. DIRECTOR, ESTT.(GP)-II
RAILWAY BOARD

No.E(GP)2005/2/8

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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. 549, Rail Bhavan, New Delhi-110001.
7. Railway Board Secretariat Staff Association.

Handwritten signature
For Secretary/Railway Board

Copy to:

PSs to MR, MSR (N), MSR (V)

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 Adv.(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), JD(MPP), JDE(R)I&II, JDE(Rep)I&II, JDE(D&A), JDE(P&A), DPCI&II, JDE(L), JDE(N), JDE(N)II, JDE(N)III, 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, E&R, E(Trg.), E(MPP), V(SS), E(SCT)I&II.

PROPOSED SYLLABUS FOR 30 % LDCE FOR PROMOTION TO GROUP "B"FORAME/AWM IN MECHANICAL DEPARTMENT	
PAPER-I	
MAXIMUM MARKS 150	PASS MARKS 90
Part A – GENERAL PORTION-50 MARKS	
GENERAL KNOWLEDGE	
This section would contain questions of general interest and importance which is acquired by general observation and reading without specific text book study. Subjects of national importance as well as achievements of railways will also be covered. The standard of General Knowledge shall not be more rigorous than Matriculation.	
GENERAL MATHEMATICS	
<ul style="list-style-type: none">• Arithmetic & Statistical operations Graphs, Fractions, Percentage, Sampling & Averages,• Geometry-Area & volume upto Higher Secondary/ Class 12 Standard• Algebra, simultaneous equations etc upto Higher Secondary/ Class 12 Standard• Mechanics Velocity & Acceleration, work done & horse power etc upto Higher Secondary/ Class 12 Standard	
STRENGTH OF MATERIAL	
Various Engineering materials and their properties, Bearings, Stress & Strain , Fatigue, hardness, Corrosion & Surface finish.	
PHYSICS & BASIC ELECTRICITY	
<ul style="list-style-type: none">• Temperature & its measurement• Mechanics : Newton's Laws of Motion, Velocity & Acceleration ,work ,energy ,power, Archimedes Principle etc.• Heat & Work, Expansion of Solids Liquids & Gases• IC Engines, Gas Turbines, Heat Recovery & Thermal Efficiency, Supercharging & Intercooling• Ohm's Law , Coulombs Law, Faraday's Laws ,Voltage , Current & Resistance, wet & dry batteries, power factor,• Simple Motors & Dynamos-Principle & working ,transformer, relay, fuse, circuit breakers• Power Supply, AC & DC ,Rectification	
PART-B PROFESSIONAL PORTION-100 MARKS	
GENERAL	
<ul style="list-style-type: none">• Out of commission (under repair) percentage for different types of rolling stock & motive power and how to minimize the same• Different Types of Locomotive ,Coaches & wagon Stock in use on the Railways.• Prevention of hot boxes on motive power/rolling stock & maintenance of roller bearings• Disaster Management- Accident Classification, duties of first official to reach at accident site, causes of accidents and their prevention, existing disaster management system & its short comings, recommendations of high level committee, accident Enquiry• Corporate Safety Plan, RSRC Recommendations• Benchmarking	

<ul style="list-style-type: none">• Quality Improvement in Work area• Failure analysis• Performance Indices• Items to be inspected at workplace• Health & Safety Standards in Shops sheds & depots.
STORES
<ul style="list-style-type: none">• Classification of Stores• Procedure for drawal of Stores• Indenting Procedures• Procurement methods-Local purchase, Spot purchase, Bulletin tender, Advertised tender, Limited tender, Tender Committee, Direct Purchasing• Schedule of Powers• Incoming inspection requirements• Scrap
INFORMATION TECHNOLOGY
<ul style="list-style-type: none">• Familiarity with Personal Computer Specs- Processor, RAM, Hard Disk, Floppy, CD, Multimedia etc.• Operating System- Windows<ul style="list-style-type: none">○ Starting & closing programs○ Creating/Saving/Copying/Moving files in PC and moving files from one PC to another PC○ Utilities/Accessories: Disk Cleanup, Defrag, Antivirus, CD Burning• Basic MS Word, Excel and PowerPoint• Basic Local Area Networks: Servers, Hubs, Switches, Structured Cabling, Nodes, Network applications• Using Internet: Email, Browsing, Searching
OTHER ISSUES
Environment ,Quality Management Systems ISO 9000 & ISO 14000

PROPOSED SYLLABUS FOR PAPER – II
MAXIMUM MARKS 150 PASS MARKS 90
Sufficient number of questions shall be included in each of the disciplines to enable a candidate to answer the questions upto full 150 marks. Part –A consists of Establishment & Financial rules worth 50 marks. Part –B Contains Professional portion of 100marks in Four sections representing various streams of Mechanical Branch - Division & Workshop Management ,Diesel Locomotives, Carriage & Wagon and Workshops. Candidates can attempt questions from their own discipline or from more than one discipline if he so desires to complete upto 100 marks .
PART-A (Establishment & Financial Rules)-50 MARKS
ESTABLISHMENT RULES
<ul style="list-style-type: none">• General Conditions of service of Railway servants including rules regarding leave ,joining time passes• Railway Service D&A Rules – 1968• Railway Service Conduct Rules- 1966• Retirement Benefits• Payment of Wages ,Allowances and Overtime• Labour laws including Payment of Wages Act, Workmen’s Compensation Act, Hours of Employment Regulations, Factories Act, Industrial Disputes Act, Contract Labour Act,• Manpower Planning & training• Welfare measures in Railways• PNM,JCM & PREM
FINANCIAL RULES
<ul style="list-style-type: none">• Parliamentary Control over Railway Finance- Public accountability, Cannons of Financial Propriety• Railway Budget- Budgetary terms, types of Budgets, Budget Cycle, Demand for grants, Expenditure Classification• Works Programme- Financial Justification of Works- Preparation of Estimates, Capital budget, Control Over Capital Expenditure• Financial and Cost Control in railway workshops , Sheds & Depot• Delegation of powers• M&P programme, RSP
PART- B-Professional Portion -100 Marks
DIVISIONAL WORKING & OPERATIONS MANAGEMENT
<ul style="list-style-type: none">• Working Time Table• Working in Control Office• Power Plan & Engine Utilization• HOER & Crew Planning• Running rooms & crew booking point management• Fuelling Installations Management• Running staff training• Load Trials• Drivers Grading System• Accident Classification ,definitions ,ART Ordering ,Role of Supervisors & officers at accident site Management.• 140 ton Crane Construction & safety in operations

DIESEL LOCOMOTIVES

- Preventive maintenance schedules
- Latest design improvements in diesel locomotives to reduce failures on line.
- Design improvements in bogies to make them fit for high speed operation
- Brake system of diesel locos including working of expressors and vigilance control devices and their maintenance
- Cooling water system of diesel engines
- Fuel oil system of diesel engines
- Control of lubricating oil consumption
- Safety devices used on diesel engines and locomotives
- Testing Equipment required in sheds for governors and fuel injection pumps. Non destructive testing such as Zyglo & magnaflux
- Trouble shooting on locomotives running on the railways
- Fuel Economy on diesel locomotives
- Maintenance requirements of different assemblies like- Traction motor/ Traction Generator ,express or, Turbo supercharger, power assembly, cylinder head
- Thermal loading of engine components
- Under gear maintenance
- Suspension bearings, wheels
- Excitation system, transition, dynamic braking, carbon brushes ,relays & contactors
- Load Box Testing
- Improvements made in ALCO locomotives
- DEMUs-types ,systems & trouble shooting
- Biodiesel, CNG
- Introduction to GM Locomotives and its systems

CARRIAGE & WAGON

- Coaching stock- preventive maintenance schedules in Coaching Depots including IOH.POH Schedules in shops
- Wagon Stock-preventive maintenance including ROH in depots and POH Schedule in shops .
- IRCA Rules for reject able defects
- ICF Bogies and their maintenance in sick line /shops
- Casnub Bogie & its modifications for high speed
- Corrosion repairs to coaching and goods stock
- Couplers & Draw gear, Train Parting & measures to avoid the same
- Water availability in coaches
- Fire prevention on Trains
- Air Brake System-Twin Pipe & single pipe. Under frame & bogie mounted brake system, Test rig , Checking timings, trouble shooting, DV defects, slack adjustment methods. Brake Binding
- Passenger amenity items
- Coach Housekeeping
- Maintenance Pattern of freight trains including CC Rakes & Coaching stock maintenance including Revised policy Circular -4
- Neutral train Examination
- Ride Index

- Anti Telescopic features
- Maintenance of various components like DV, SAB, PEASD,
- Latest design improvements of Carriage & wagons to improve their performance and speed potential
- LHB Coaches & BLC Wagons
- Construction , Design & Maintenance of Tank Wagons

WORKSHOPS

- System of labour accountal GA Cards for time keeping documents, tally sheets, Job/Route Cards, inspection & rate fixing
- Rules & Calculations under incentive scheme
- Paints & painting systems
- Different types of machine tools such as lathes , milling machines ,shapers ,planers ,cutting tools & cutting speeds
- CNC machines
- CLW Pattern of Incentive Scheme, Group Incentive Scheme
- Different types of welding processes, welding defects
- Wheels, tyres & axles and their ultrasonic testing
- Heat treatment of ferrous items such as surface hardening ,annealing, normalizing etc
- Roller Bearing & Cartridge Bearings
- Injury free features in coaches
- Material handling

RBE No.40/2007

भारत सरकार
रेल मंत्रालय (रेलवे बोर्ड)

सं.ई(जी.पी.)2005/2/8

नई दिल्ली, दिनांक 22/3/2007

महाप्रबंधक,
सभी भारतीय रेलवे एवं उत्पादन इकाइयां.

विषय: रेलों/उत्पादन इकाइयों के यांत्रिक विभाग में ए एम ई/ए डब्ल्यू एम के समूह 'ख' के 30% पदों पर पदोन्नति हेतु सीमित विभागीय प्रतियोगी परीक्षा के लिए पाठ्यक्रम.

संदर्भ: रेलवे बोर्ड का 12.11.1979 का पत्र सं.ई(जी पी)79/2/30/3.

रेलों/उत्पादन इकाइयों के यांत्रिक विभाग में समूह 'ग' से समूह 'ख' पदों पर पदोन्नति हेतु सीमित विभागीय प्रतियोगी परीक्षा के लिए संशोधित पाठ्यक्रम मार्गनिर्देश हेतु संलग्न है. संशोधित पाठ्यक्रम का व्यापक प्रचार किया जाए और पात्र उम्मीदवारों के बीच परिपत्रित किया जाए.

2. संशोधित पाठ्यक्रम इस पत्र के जारी होने की तारीख से प्रभावी होगा. बहरहाल, सीमित विभागीय प्रतियोगी परीक्षा, जिनके लिए लिखित परीक्षा पहले ही कराई जा चुकी है या जो अग्रिम स्तर पर पहुँच चुकी है, में हस्तक्षेप करने की आवश्यकता नहीं है.

3. कृपया पावती दें.

संलग्नक: यथोक्त

संतोष मित्तल

(संतोष मित्तल)

उप. निदेशक/स्थापना(जी.पी.)-II

रेलवे बोर्ड.