



कार्यालय महाप्रबन्धक (कार्मिक), पूर्वोत्तर रेलवे/गोरखपुर-273012
Office of the General Manager (P), N. E. Railway Gorakhpur-273012

क्रमांक:- 160

File No: NER-HQ0PERS(POLI)/114/2025-O/o SPO/HQ/HQ/NER(Computer No: 140007) दिनांक :- /09/2025

सचिव/महाप्रबन्धक

सचिव/अपर महाप्रबन्धक

सभी विभागाध्यक्ष

सभी मण्डल रेल प्रबन्धक

सभी कार्मिक अधिकारी

सभी मुख्य कारखाना प्रबन्धक

सभी अतिरिक्त मण्डलाधिकारी/स्थापना

पूर्वोत्तर रेलवे

विषय :- विद्युत विभाग के विभिन्न पदों पर चयन हेतु कामन पाठ्यक्रम उपलब्ध कराने के सम्बन्ध में।

सन्दर्भ :- महाप्रबन्धक/कार्मिक/गोरखपुर का पत्र संख्या ई/2025/सर्कुलर/चार दिनांक 25.06.2025

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विषयगत मामले में विद्युत विभाग के विभिन्न पदों पर चयन हेतु निम्नलिखित कामन पाठ्यक्रम आवश्यक कार्रवाई हेतु जारी किया जा रहा है—

Sr No.	Designation
1	JE/TRD
2	JE/EMU
3	JE/General Power
4	JE/TL AC
5	JE/Elect/TRS

अतः उक्त मामले में तदनुसार आवश्यक कार्रवाई सुनिश्चित करें।

उपरोक्त पाठ्यक्रम पर प्रमुविई का अनुमोदन प्राप्त है।

संलग्नक/यथोपरि

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Kumar Dwivedi
Date: 24-09-2025 14:25:42
Reason: Approved

(वी.के.द्विवेदी)
उपमुकाधि/मुख्यालय
कृते महाप्रबन्धक/कार्मिक

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित:-

- 1)महामंत्री/एन.ई.रेलवे मेन्स कांग्रेस/पूर्वोत्तर रेलवे/गोरखपुर
- 2) महामंत्री/प्रोमोटी अधिकारी संघ/पूर्वोत्तर रेलवे/गोरखपुर
- 3) पूर्वोत्तर रेलवे प्रथम श्रेणी अधिकारी संघ/गोरखपुर
- 4) महामंत्री/एस.सी/एस.टी एशोसिएशन/गोरखपुर

कृते महाप्रबन्धक/कार्मिक



कार्यालय महाप्रबन्धक (कार्मिक), पूर्वोत्तर रेलवे/गोरखपुर-273012
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सचिव/अपर महाप्रबन्धक

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सभी मुख्य कारखाना प्रबन्धक

सभी अतिरिक्त मण्डलाधिकारी/स्थापना

पूर्वोत्तर रेलवे

विषय :- विद्युत विभाग के विभिन्न पदों पर चयन हेतु कामन पाठ्यक्रम उपलब्ध कराने के सम्बन्ध में।

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उपरोक्त पाठ्यक्रम पर प्रमुविई का अनुमोदन प्राप्त है।

संलग्नक/यथोपरि

(वी.के.द्विवेदी)

उपमुकाधि/मुख्यालय
कृत महाप्रबन्धक/कार्मिक

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित:-

- 1)महामंत्री/एन.ई.रेलवे मेन्स कांग्रेस/पूर्वोत्तर रेलवे/गोरखपुर
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- 3) पूर्वोत्तर रेलवे प्रथम श्रेणी अधिकारी संघ/गोरखपुर
- 4) महामंत्री/एस.सी./एस.टी. एशोसिएशन/गोरखपुर

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Reason: Approved
कृत महाप्रबन्धक/कार्मिक

Syllabus for selection for post of JE/TRD Departmental LDCE Quota.

1. Details knowledge of OHE equipment its sign and symbol and diagram.
2. Safety rules of OHE, Shock treatments and fire preventions
3. Principles, for layout plan and Sectioning diagram for 25 kV A-C Traction Cantilever, Electrical clearance, Encumbrance, Contact wire, Catenary wire, Interruption jumpers, Neutral Section, Overlap, Regulating Equipment (ATD), Implantation Stagger Section Insulator, Feeding post, Sectioning Post, Sub Sectioning Post, Sector, Sub-Sector Elementary Section, Turn out and other OHE parameters (Including diagrams)
4. Code for Bonding & Earthing for KV AC Single phase Traction system
5. Maintenance Schedules of OHE, PTFE, ATD, Turnout & Section Insulator and foot patrolling reports
6. Power Block and Permit to work.
7. OHE Breakdown & fault Segregation
8. Pre-monsoon precautions O.D.C.
9. OHE Maintenance Registers.
10. Maintenance Schedule of 132 KV Transmission and clearance with OHE.

PSI

1. Details knowledge of PSI equipment, and its sign and symbol.
2. Detail of Traction Sub-Station Equipments, Sectioning post, Protective Relays.
3. Maintenance of power Supply Installation Equipment, like Circuit Breaker (SF-06 & Vacume type) Interrupter, Power transformers, Fafferies, Booster Transformers, Aux Transformer (A.T.) Lightening Arrestors (LA) PTs & CTs etc.
4. Register for P.S.I. Equipment Maintenance.

R.C. (Remote Control)

1. Details knowledge of R.C. Equipment and its sign and symbol
2. Functional description of SCADA system Technical description of KTL
3. Maintenance of SCADA system, RTU. Software feature. UPS with Spl. Attention tonthe system working in LKO Division.

Establishment and store

Leave Rules, Pass Rules, DAR Rules, Post/category promotion rules and Materials Indent, and Cash Imprest details.

राजभाषा हिन्दी

राजभाषा नियम 1976 एवं भारतवर्ष का क्षेत्रीकरण, प्रोत्साहन, योजनाएँ, पुरस्कार, अनुवाद(हिन्दी/अंग्रेजी), संविधान की अष्टम सूची में राष्ट्रीय भाषाओं का ज्ञान।

In addition to above-General question will also be asked from Basic Electrical Engg, Maths, Chemistry, Physics, General Knowledge etc.

**Selection/written test for promotion to the post of Junior Engineer Level-06 (GP-4200)
against 25% Intermediate Quota in Electrical/EMU Department.**

**1. INTRODUCTION TO WORKING OF RAILWAY ORGANIZATION AND ELECTRICAL
DEPARTMENT SET UP**

- a. General introduction to Indian Railways- Brief History, salient features.
- b. Organizational structure- Railway administration/ Railway Board setup, Zonal/HQ setup, Divisional setup etc.
- c. Introduction to Electrical Department- organizational structure, functions, role of electrical department in Railways.
- d. Organizational structure of Sheds/Workshops, sections of the shed & their functions.
- e. Various units of Railways, Major workshops, Production units, RDSO etc.
- f. Duties of JE/SSes.

2. CONDITION MONITORING

- a) Basic concepts of Condition Monitoring of Electrical Equipment
- b) Condition Monitoring Techniques
DC tests- Insulation Resistance test etc.
AC tests- Capacitance & Tan Delta measurement, Partial Discharge, Transformer Electrical tests, etc.
- c) Condition Monitoring of Transformers Theory and Practice of Dissolved Gas Analysis (DGA), BDV, Capacitance & Tan Delta measurement of winding and Bushings etc.
- d) Condition Monitoring of power cables
- e) Non-destructive testing techniques for crack detection like visual testing, Dye Penetrate Testing, Eddy current testing and Ultrasonic testing etc.

3. BASIC TECHNICAL KNOWLEDGE:

- a) Basic principles of electricity and magnetism, properties of electric materials, AC and DC power supply, Conductor, semi-conductor and insulators, Voltage, resistance, Power, Ohms law, Series and parallel connections, colour code for resistor, batteries etc.
- b) Basic electronics diodes, transistors, rectifiers, voltage stabilization and its applications.
- c) Knowledge of electric measuring instruments, their principles and construction
- d) General knowledge of servo motors, stepper motors welding control and servo control
- e) Knowledge of various electromechanical/magnetic control relay, contractors, micro switches. limit switch proximity or sensor switches etc. and their application in various machine tools and workshop equipment.

4. MAINTENANCE AND SERVICING:

- a) Trouble shooting techniques and modern repair techniques, proper use of electrical test instruments/equipment for trouble shooting and servicing of electrical/electronic systems.
- b) Knowledge of modern test and measuring equipment available in electrical repair shop and their application.
- c) Importance of preventive maintenance use of check lists, scheduling planning for maintenance work, maintenance log cards regarding EMU/MEMU rakes.
- d) Knowledge of Electrical installation of machinery and plant with specific attention to power space requirement and installation Illumination, grounding methods of improving grounding resistance with special attention to electronically controlled machine.
- e) Know power and control circuit drawings component layout nomenclature, code of practice of engineering drawing, schematic symbols, free hand sketching of electrical circuits, relays contractor timers etc.

5. DISCIPLINE SPECIFIC KNOWLEDGE-EMU:

- a) General description of EMU/MEMU conventional & 3 phase rakes, their Acceleration and retardation, regenerative braking
- b) Difference between EMU and MEMU Type of Coaches (MC. TC and vendor coaches). Unit information of EMU and MEMU
- c) Maintenance schedule of Periodicity and major activities in conventional & 3 phase EMU/MEMU rakes, codes/manuals/SMIs related to EMU/MEMU, Trip/schedule inspection, testing protective device and relays, OHE isolation.
- d) Description of Mechanical items, Bogle, wheels, Gear, axle box, Coupler, side bearers, centre pivot, cattle guard, Roller bearings, air suspension bearing. Axle clearances, wheel defects, lubricants used etc.
- e) Traction Motor and Aux Motors, OHE, Pantograph, SPM and Pneumatic items- Compressor, Main reservoir, air dryer, Braking system, Brake binding etc.
- f) Function of Major and ratings equipment (Circuit breaker, ABB/VCB). Bushing/CHT, TP. Choke tank, Rectifier, switch gear, Tap changer. Function of Traction control management systems, HMI, Papis, Master controller, deadman's handle, all types of converters, DC link. electronic cards etc.
- g) General description of train lighting, cab items, battery items, Head light, flasher light, jumper, charger, Carriage fans, MCBs, fuses & their ratings, electrical equipment in HT/LT compartments.
- h) Passenger amenity items, body furnishing items, bio-toilets, RTIS, Fire Suppression & smoke detection system, Kavachi working & limitations,

6. WELDING TECHNOLOGY:

- a) Basics of welding. Classification of various types of welding techniques, gas cutting, laser cutting etc. and their application
- b) Safety during welding and gas cutting
- c) Welding defects and prevention
- d) Classification, properties and selection of electrodes.

7. SHOP MANAGEMENT:

- a) Knowledge of functions of Time Office and procedure orders for gate passes. Knowledge of incentive scheme, work order system, booking of labour hours, documents processing.
- b) Various registers maintained in shops and their need. Stock verification authorities and periodicity.
- c) Various safety measures to be followed on the shop floor in general and for various machines and equipment in particular, availability of first aid, Earthing, insulation, circuit protection, Fire safety in electrical systems.
- d) Staff protective clothing and their entitlements.

8. MATERIAL MANAGEMENT IN RAILWAYS:

- a) Introduction to material management.
- b) Organizational structure of material management organization of Indian Railways
- c) Functions of material management Planning and inventory management (Stock items, PL no. & non stock items), procurement, receipt and inspection & handling of rejection etc.
- d) Model SOP, IRS-condition of contract, Store Depot working, stock verification & audit. Scrap disposal.
- e) Non stock procurement under works programme, RSP, MAP, E-procurement, IREPS, GEM procurement etc.

9. CONTRACT MANAGEMENT & FIANANCIAL MANAGEMENT:

- a) Contract management
 - Tenders & Co. tracts
 - Vigilance
- b) Financial Management
 - Railway accounting and financial procedures
 - Primary units, various demands
 - Works programme, M&P and RS programme
 - Stages of budgeting (Revised and Budget estimates, Review, Final Modification)
 - Roles of JE & SSE in Tenders & Contracts

10. GENERAL & ESTABLISHMENT KNOWLEDGE:

- a) D&AR Rules: Various definitions, the applicability, suspension and issue of minor penalty charge sheet, appeals
- b) Industrial relations and roles of trade unions.
- c) Various types of leaves which can be granted to staff.
- d) Railway Service Conduct Rules.
- e) General knowledge about working in various other departments in Railways
- f) Knowledge about Pass, PTO, Travel on duty, increment, Promotion of artisans, Quarters, Staff welfare, Allowances, HOER etc.
- g) Basics of RTI and Disabilities Acts and our obligations & responsibilities.
- h) Establishment powers of JE & SSE in open line.

11. COMPUTER FUNDAMENTELS:

- a) Basics of hardware and software, Semiconductors, Gates and Diodes.
- b) Operating systems basics
- c) Internet, E-mails, MS-office and useful apps.

12. राजभाषा

- a. राजभाषा संवैधानिक प्रावधान,
- b. राजभाषा अधिनियम 1963 (यथा संशोधित 1976),
- c. संविधान की आठवीं अनुसूची में शामिल भाषाएँ,
- d. राजभाषा कार्यान्वयन समिति,
- e. राजभाषा प्रोत्साहन / पुरस्कार योजनाएँ,
- f. हिंदी प्रशिक्षण

13. General Knowledge, Reasoning. Aptitude.

SYLABUS FOR THE SELECTION OF JE /Elec. under INTERMEDIATE APRENTICES (25 % LDCE quota)

(ELECTRICAL)

(A) SKETCHING

- 1) Sign and symbol used in Electrical Engineering.
- 2) Free hand sketching of actual parts of simple objects related to train lighting, power, Air conditioning and Loco Head light etc.
- 3) Free hand drawing of Electrical circuits and diagram using standard symbols.
- 4) Reading & explanation of simple Electrical & Electronic circuits.

(B) SIMPLE ENGLISH

- 1) A precise english write up regarding the working of some electrical equipment's like dynamo, alternator, battery, motor, motor starter, light fitting etc.
- 2) An application in english for casual leave, quarter allotment etc.
- 3) Simple translation English to Hindi and Hindi to English.

(C) WORKSHOP CALCULATION

- 1) Simple Arithmetical and Algebraical problems.
- 2) Area of Circle and ellipse, Volume and weight of regular cones, Spheres, Calculation of Area volume and weight of Hollow & Solid bodies.
- 5) Determination of weight diameter and length of different types of wires and cables, calculations of materials for Layout of house wiring and etc.
- 4) Description and explanation of expansion of solid liquids and gases due to heat co-efficient of expansion. Brief description of conduction, convection and radiation.
- 5) Arithmetical calculation of torque, speed and horse power of motors calculation based on Ohms Law and determination of energy consumed.
- 6) Use of Metric system including simple conversion.

(D) ELECTRICAL TECHNOLOGY.

- 1) Regulation for working on electrical equipment or laid down by this Railway and Indian Electricity rules.
- 2) Composition, properties and application of the heat insulating materials.
- 3) Uncing out detail of material schedule to carry on works connected with all the trade groups of the departments.
- 4) Description of constructional features of common type of motors and Generators.
- 5) Transformers - Their types, uses constructional features condition and method of paralleling of transformers', drying out and commissioning of transformers.
- 6) Principles & output characteristics of inherently regulated dyn.men in regard to out in speed, maximum out with different setting of output adjuster.
- 7) Code of practice applicable to train lighting, tumbo generson and headlight.
- 8) Condition and special features of various cells used in Railway their upkeep & common remedies.
- 9) Indian Electricity Rules.
- 10) Type AC/DC motors, characteristic, advantages; disadvantages and its use.
- 11) Simple working of diesel Engine, Generating sets, working of Alternator etc.

Syllabus for JE Train Lighting & Air Condition

1.0 All the maintenance manual issued by CAMTECH for various maintenance schedules of AC/Non-AC/ICF/LHB, Power Cars, Pantry Cars, LSLRDs; fire code issued by RDSO EL/TL/56 and RDSO/PE/O/0008-2005 (Rev. 0).

2.0 **Non-AC coaches and LSLRD:** complete power and control gear wiring diagram, three tier level of protection, detail functioning and troubleshooting of various equipments viz. 4/25 kW Alternator, ERRU, HRC Fuses, RSW panel, VRLA batteries, various maintenance Schedules and work done in these, RBC, EBC, REBC, BLDC fan, pump with controller wiring diagram, 2.5 KVA inverter etc. Battery charging equipment, Net-1 and Net-2 circuit, interface with HOG, UIC and IVC coupler.

3.0 **Power Car:** DA Set specification and functioning of various protective gadget like AEL, FEL FOL, UVR, OSR, ICHT, LLOP along with settings. Functioning of Actuator, NRV, Injector assembly, Kaplan coupling, starter motor, starter battery, Radiator control panel, radiator, fuel oil pump, Lube oil pump, EGT sensor etc. Trouble shooting of above items. Various maintenance schedules as per CAMTECH viz. A, B, C, D, E schedule and details therein. Interface with HOG loco and functioning & troubleshooting of HOG loop through UIC coupling. Functioning, operation and troubleshooting of FDSS.

4.0 **AC coaches:** Complete power and control wiring, functioning of all contactors, protective gadgets like MMR, IM device, HRC fuses, MPCB, MCB, glass fuses and all gadgets in SBC.

Equipment description & functioning of IVC, UIC, Net-1 & Net-2, main junction box, positive and negative fuse box, RBC, EBC, REBC, VRLA battery, 60 kVA transformer, D&ED, wheel set earthing device etc.

Functioning of RMPU, protective gadgets like OVP, ESTI, NTC sensor, RMPU microcontroller, Condenser, compressor, blower, refrigerant cycle.

Values of fresh air, return air, compartment air velocity, hotel load calculation. Troubleshooting of all above.

Various maintenance schedules. Duties of ACCI & ACCEA, precooling & LMS main supply. Operation & maintenance of AC coaches.

**Syllabus for the post of JE/Elec/TRS against 25% promotional quota and 25 %
LDCE Intermediate Apprentice quota**

I. GENERAL:

- a. Knowledge of English should be able to carry on- day to day correspondence, submit reports and understand departmental rules safety regulations, etc.
- b. Should be able to prepare estimates, Schedule of materials and labour for the execution of works, should understand the drawings and sketches and be able to guide and instruct staff under him.
- c. Should be conversant with the procedure for obtaining and accounting stores, booking of labour and maintaining muster rolls etc.
- d. Should be conversant with Establishment matters such as DAR, Leave Rules, Pass Rules etc, departmental procedure regarding HOER, Factories Act, Booking of overtime and Stores matters etc.

II. OFFICIAL LANGUAGE POLICY AND RULES:

III. TECHNICAL:

(A). MECHANICAL :

- a. Should know the general Mechanical principle and their applications.
- b. Should be fully conversant with operation and the maintenance of Air compressors, pumps, hydraulic jacks, vacuum exhausters, EOT cranes, machine tools, welding plants, Lathes and other workshop machinery etc.
- c. Should be proficient in the repairs of mechanical components of rolling stock such as bogies, under frames, axle boxes, brake gear, draft and buffer gear, body repair work etc., and be conversant in standard moving dimensions, condemning Size of wheels etc.
- d. Should be thoroughly conversant with re-metaling of suspension bearings and overhauling procedure of-Axle Roller bearings.
- e. Should be conversant with the mechanical equipment such as gauges used for checking dimensions etc.
- f. Should be proficient in the use of various type of paints and primers their specification and covering capacity etc.
- g. Should understand the drawing and specifications of mechanical components of rolling stock.
- h. Should be fully conversant for the for the process of preparation of surfaces for basic and final coats of primers and paints mixing to the correct shades, prevention-against corrosion in Locos.
- i. Should be well conversant with safety precautions, rules for safe working on Electrical equipment, GRS for 25 KV OHE traction system, TXR hand book and First aid procedure etc.
- j. Identification of Corrosion and its related repair activities in Locos
- k. Should be conversant with Wheel lathe operation and checking of Wheel profile.

- I. Should be conversant with the different Welding Techniques.

(B). PNEUMATIC :

- a. Should be conversant with the working principle of Air Compressors, Air Dryer, Pantograph, Brake Cylinders, pneumatic gauges, pressure switches, safety valves & Parking brake etc. for conventional and Three phase Locos.
- b. Should be conversant with working principle and maintenance of Pneumatic valves, Brake controller etc. & Brake Electronics system of Three phase Locos.
- c. Should be conversant with the laying and repair of Pneumatic Pipe lines and fittings.
- d. Should be conversant with the Brake testing of conventional and three phase Locos.

(C). ELECTRICAL:

- 1- Should know the principles of electro-magnetism, details of construction and application to various types of electrical machines and appliances should as motors, transformers, Relays etc.
- 2- Should be fully conversant with different types of windings used in armatures of DC motors and generators & stators and rotors of AC Machines.
- 3- Should be able to test, locate and rectify faults in armature and field coils of electrical machines and accessories.
- 4- Should know uses of various types and sizes of wires and cables, their current carrying capacities, different types of installations, windings, binding, baking, shellacing, varnishing etc., including Y, A, B, C, E, F & H class insulation.
- 5- Should be conversant with the procedures in drying out and impregnating armatures etc. and operations and repairs of the impregnating plant.
- 6- Should be familiar and conversant with the various types of measuring and testing Instruments.
- 7- Should be fully conversant with operation and Maintenance of machinery such as pumps, transformers, motors, starters and associated protective devices.
- 8- Should be proficient in the details of and the electric traction equipment in locomotives as well as EMUS.
- 9- Should be familiar with Fire detection unit, flasher and safety item provided in Locos.
- 10- Should be able to test all control and power, control and auxiliary circuits of conventional as well as Three phase Locos.
- 11- Should be familiar with activities involved in Trip, IA, IB, IC Inspection Schedules and TOH/IOH/POH schedule maintenance (Electrical, Pneumatic, Mechanical and Testing portion complete).
- 12- Should be conversant with all type of brake system in both Locos and EMUs
- 13- Should understand latest developments in LOCO like KAVACH, VCB, SIV, FDOS and VCD etc.
- 14- Should be familiar with basic functions of GTO/IGBT, SR, BUR, VCU and its working in Three Phase Locos.