



पूर्व मध्य रेल
EAST CENTRAL RAILWAY

कार्यालय
महाप्रबंधक (का.)
हाजीपुर

No.ECR-HQOPERS (RULE)/0013/2025 (Com.No.353304)

Date: As Signed

1. CAO (Con.)/उत्तर एवं दक्षिण/पटना।
2. सभी PHOD/CHOD/पूमरे/हाजीपुर।
3. DRM/पूमरे/दानापुर, डीडीयू, धनबाद, सोनपुर एवं समस्तीपुर।
4. मुख्य कार्मिक अधिकारी/आई.आर.एण्ड डब्ल्यू/पूमरे/हाजीपुर।
5. मुख्यालय के सभी कार्मिक अधिकारी।
6. CWM/पीडी/डीडीयू, यांत्रिक कारखाना/समस्तीपुर एवं हरनौत।
7. Dy.CPO/पीडी/डीडीयू।
8. Sr.DPO/पूमरे/दानापुर, डीडीयू, धनबाद, सोनपुर एवं समस्तीपुर।
9. उप महाप्रबंधक/विधि/पटना।
10. प्राचार्य/क्षेत्रीय रेल प्रशिक्षण संस्थान/मुजफ्फपुर एवं भूली।
11. सकाधि/यांत्रिक कारखाना/समस्तीपुर एवं हरनौत।
12. सभी मुकार्याधी/कार्याधी/पूमरे/हाजीपुर।

विषय:- Syllabus for Selection to the different Posts of Electrical Department under PRQ/IAQ/LDCE.

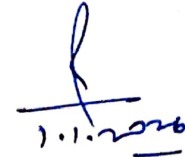
विषयोक्त के संदर्भ में विद्युत विभाग के विभिन्न पदों के लिखित परीक्षा हेतु पाठ्यक्रम (Syllabus) सूलभ संदर्भ हेतु संलग्न किया गया है। पदों का विवरण निम्नवत है : -

1. JE/Elect./TRD
2. JE/Elect./G
3. JE/TRS
4. Tech.III (TRD)
5. Tech.III (TRS)
6. ALP
7. CLI

Note : Optional Question of 10% of total marks on Rajbhasha Policy and Rules.

सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित किया जा रहा है।

उपरोक्त पर PCEE महोदय का अनुमोदन प्राप्त है।


1.1.2026

(अजित कुमार)

उप मुख्य कार्मिक अधिकारी/आई.आर.एण्ड.डब्ल्यू.
कृते महाप्रबंधक (कार्मिक)/पूमरे/हाजीपुर

प्रतिलिपि/- निम्नलिखित को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित:-

1. प्रमुकाधि के निजी सचिव - प्रमुकाधि महोदय को सादर सूचनार्थ।
2. महासचिव/ईसीआरईयू/पूमरे/हाजीपुर।
3. महासचिव/एस.सी.एवं एस.टी.एशोसिएशन/ओ.बी.सी.एशोसिएशन/पूमरे/हाजीपुर।
4. सकाधि (एम.पी.पी.)/पूमरे/हाजीपुर-कृपया इसे वेबसाइट पर अपलोड कराने की व्यवस्था करें।



Syllabus for the selection of Junior Engineer/TRD

1.	Introduction to working of Railway organization and electrical department set up, functions of various streams	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) Brief history and salient of electric traction on Indian Railway. e) Various units of Railways, Major Workshops, Production units, RDSO etc. f) Duties of JE/SSEs.
2.	General description of fixed installation	a) Power supply arrangement at Traction sub-stations. b) Power supply for signaling. c) Remote Control and communication arrangements. d) Communication facilities. e) Traction Power Control. f) Overhead Equipment.
3.	Power supply for traction	a) Supply system. b) Liaison with power supply authorities. c) Traffic for traction. d) Monthly meter reading. e) Scrutiny of bills. f) Power factor improvement. g) Shut down of traction supply. h) Statical data regarding energy consumption. i) Open Access.
4.	Principles for Layout Plans and Sectioning Diagrams	a) Introduction & Definitions. b) Sectioning arrangement. c) Numbering of OHE masts. d) Numbering of equipment. e) Numbering of elementary sections.
5.	Overhead Equipment-I	a) Duties of JE (OHE). b) Foundations for OHE Structures. c) OHE Structure. d) Cantilever Assembly e) Regulating Equipment f) Section Insulator g) Isolators, Droppers h) Neutral Section i) Conductors j) Tension length k) Overlap l) Jumpers m) Contact wire height n) Stagger o) Encumbrance p) Span Length q) Implantation/Setting Distance r) Turnout and Crossover s) Clearances. t) Bonding and Earthing u) Transmission lines

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6.	Overhead Equipment-II	a) Maintenance schedule for overhead equipment. b) Foot patrolling of OHE. c) Footplate inspection. d) Tower wagon operation, maintenance and safety while working. e) Safety rules for OHE. f) Current collection test (OLIVER-G) g) Environment effect on OHE. h) Schedule of inspection. i) Investigation of OHE failure. j) Document to be kept for work on OHE.
7.	Power Supply Installation-I	a) Duties of JE (PS I) b) Traction Power Transformers c) Circuit breaker, Interrupter and Isolator d) Auxiliary Transformer e) Current Transformer f) Potential Transformer g) Lighting Arrestor h) Capacitor Bank i) Bonding and Earthing j) Batteries and Battery chargers k) Numbering Scheme in PS I
8.	Power Supply Installation-II	a) Protective system and Relay setting calculations. b) Maintenance Schedule for power supply installations. c) Energy conservation measures for Traction installations. d) Safety during working at power supply installations. e) Uses of Thermo-Vision Camera, Conditioning Monitoring PSI Equipment's. f) Investigation of PS I failure.
9.	2X25 kV ac Traction System	a) Introduction and description of 2X25kV ac Traction System.
10.	High Rise OHE	a) Various parameters of High Rise OHE.
11.	Remote Control and SCADA system	a) Introduction. b) Duties of JE (RC) c) Salient features of SACDA d) System Description e) Investigation of SCADA failure. f) Maintenance schedule.
12.	Traction Power Control	a) Operation b) Duties of CTPC and TPC c) Power blocks and PTW d) Joint procedure order
13.	Breakdown and Electrical accident	a) Sub-station and switching station breakdown b) Breakdown of RC equipment c) OHE breakdown d) Electrical accidents e) Emergency stores and breakdown equipment
14.	Railway Electrification	a) Introduction b) Survey Team & its work. c) Foot by foot survey. d) Abstract Estimate and Cost Benefit Analysis. e) Detailed estimate

		f) Format of the project report g) Commissioning of Electrical Installation and EIG Sanction. h) Works programme, machinery & plant programme and rolling stock programme.
15.	Preparation for commissioning	a) Pre-commissioning inspections of new lines/sections. b) Commissioning of transformers, Circuit breakers, interrupters, current transformer, potential transformer & Auxiliary transformers etc. c) Detailed joint inspection of OHE. d) Insulation tests. e) Continuity tests.
16.	Safety precautions on electrified section	a) Station working rules- movements of tower car, caution order, safe working rules in 25 kV & 2x25 kV territory, G&SR relating to tower car. b) Protection of staff against traffic movements and protection of trains. c) Induction effects of 25 kV ac 50 Hz Single Phase Traction. d) Working of Diesel locomotives and steam locomotive in electrified section. • Watering of carriage in electrified sections- basic precautions, watering section, sequence of interlocking & Operation, persons authorized to open switches, custody of keys, key register, Loss of keys. e) Loading & unloading of petroleum products:- f) Rules applicable to Permanent Way Staff. g) Rules for S&T Installations. h) Over Dimensioned Consignments (ODC) & JPOs. i) Other Precautions :- • Movement of Rubber Tyred Vehicles on Railway Wagons. • Hording Boards. j) Competency Certificate :- • Competency certificate and courses for Station Masters/Pointsman to operate isolators. k) Regulations for power line crossings of Railway track - Maintenance schedule & items to be attended. l) Induction effect on nearby LT lines and yard lighting. m) Safety precautions to be taken for PF shelters, fencing, FOBs while working in the vicinity of 25 kV. n) Operation & importance of locking of interlocked isolators. o) Importance of permit to work, earthing, bonding, temporary jumpering of rails in case of rail fracture/rail changing. p) New technology & case studies.
17.	Electrical Accidents	a) General safety rules, importance of safety belts, helmets, ladders. b) Electrical shock causes, Prevention & treatment etc. c) Preventive measures to avoid electrical accident. d) Measures to be taken in case of electrical accident. e) Case studies and discussion. f) Fire causes and safety measures and various codes. g) First aid for injury, burns etc.

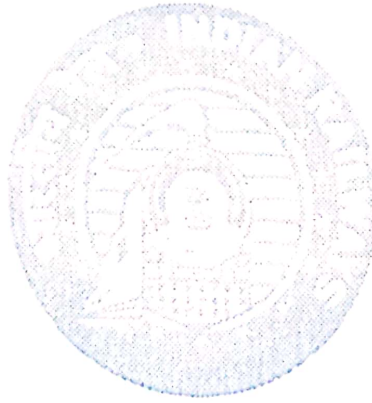
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18.	IE Rules and Energy Conservation	a) Brief on I.E. Rules, Energy Conservation Act, BEE, ECBC Code, information on star rated products, etc. b) Global Warming & climate change, clean development mechanism and carbon credits, etc. c) Solar Energy Application d) Energy efficiency measures in Electrical department
19.	Energy conservation	a) Monitoring of Energy Conservation b) Energy conservation measures for Traction Installation. c) New developments.
20.	Familiarization with other departments to understand their working and inter department coordination	a) Electrical Inspector General (EIG) sanction. b) Overview of Codes, manuals and other publications of electrical department issued by Railway board, RDSO etc. c) Renewable Energy Sources- Solar energy, wind energy etc. d) Working of control office/TPC/TLC. e) P-way maintenance/assets f) Sick lines, C&W depot/activities. g) Signalling & tele-communication/RRI working.
21.	Disaster Management	a) Introduction to Disaster management, NDRF, SDRF etc. b) Organizational infrastructure to effectively combat disaster (medical accessories, relief train, essential materials). c) Accident & breakdowns management, preventive steps. d) Analysis of breakdowns, case studies and discussion
22.	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, M&P, E-procurement, IREPS, GEM procurement etc.
23.	Contract Management & Financial Management	a) Contract management • Tenders & Contract • 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) • Role of JE & SSE in Tenders & Contracts
24.	General & Establishment Knowledge	a) D&AR Rules: Various definitions, the applicability suspension and issue of minor penalty charge sheet, appeals b) Rules for engagement and discharge of casual labours/substitutes and knowledge of relevant sections, 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

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		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 out obligations & responsibilities. h) Establishment powers of JE & SSE in open line.
25.	Computer Fundamentals	a) Basics of hardware and software, semiconductors, diodes and gates. b) Operating systems basics c) Internet, E-mails, MS-office and useful apps
26.	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) हिन्दी प्रशिक्षण
27.	General Knowledge, Reasoning, Aptitude.	

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SYLLABUS FOR THE SELECTION IN THE CATEGORY OF JE (ELECT.)

1. GENERAL POWER SUPPLY:

- a. **BASIC ELECTRICAL UNITS:** Definitions and their relations, Volts, Amperes, Ohm, Capacitance, Impedance, Resistance, Series & Parallel connections.
- b. **ELECTRICAL MEASURING INSTRUMENTS & MEASUREMENTS:** Types of Electrical measuring instruments and their applications, AC, DC instruments, their connections, arrangements, types, latest instruments.
- c. **ELECTRICAL MACHINES:** Various types of Motor viz. single phase and three phase Induction motors, Generators/Alternators, their constructions, various parts, their functions and connections. Starters for motors, application of various types of motors.
- d. **TRANSFORMERS:** Power transformers, distribution transformers, Parallel operation of 3 phase transformers, Current transformers, Voltage Transformers, Transformation ratio functions, simple calculations, capacity rating, current voltage ratios.
- e. **CABLES:** Types, Grades construction, usage, rating, capacity, methods of laying underground and overhead cables, Fault detection, Methods of laying cables across Railway tracks, testing and commissioning.
- f. **WIRING:** Types and various accessories, testing types and various accessories, Quarter wiring/Stair case wiring, commissioning, grades & capacity of wires used and safety equipment. Types, mechanism and proper rating of MCB, MCCB, RCCB, RCBO.
- g. **TRANSMISSION OF ELECTRICAL ENERGY:** Knowledge of 33 KV and 11 KV overhead and underground cables.
- h. **INSULATION MATERIALS:** Knowledge of various insulation methods, grades, insulation, types, compounds, break down values and units of measurements.
- i. **LIGHTING FITTINGS:** Various types of lights in stations, yards and other railways installations. High masts and their parts, various Lighting poles.
- j. **TOOLS & PLANT:** Knowledge of various tools used for electrical works and measuring testing instruments and knowledge of their use.
- k. **CONTROL SWITCHGEAR:** Knowledge of various control equipment, their purpose. grade, rating, capacity, various types of switches for LT & HT circuit.
- l. **SUB-STATION and EARTHING:** Layout of 33 KV, 11 KV substations. Protective equipment and maintenance schedule. Record keeping, procedures for arranging permit to work etc. Basics of earthing, Types of earthing, earthing values of various installations. Metering, Billing and Tariffs.
- m. **SAFETY PRECAUTIONS AND FIRST AID:** Precautions to be taken while working in electrical installations. Action to be taken in case of accidents viz. CPR, first aid. Firefighting and use of fire extinguishers in case of electrical fires.
- n. **PUMPS:** Types of pumps used in railway installations, their construction, names of various parts, efficiency rating, capacity, suction, delivery head, erection, testing & commissioning. Pressure gauges, control valves, strainer foot valve, precautions for starting, safety equipment & protection arrangement, trouble shooting and remedies.


 21/11/23

- o. **AIR CONDITIONING & REFRIGERATION:** Basics of air conditioning viz. temperature, humidity, dehumidification, dry and wet bulb temperatures. Basic knowledge and types of AC's and water coolers used in Indian railways. Types of refrigerants, Type of compressors, Basic of refrigerator cycle. Operations and maintenance of various AC/refrigeration equipment. Trouble shooting and their remedies.
- p. **BATTERIES:** Type of batteries, construction, knowledge of charging and discharging their maintenance, checking of Specific gravity, Precautions to be taken while maintenance.
- q. **ENERGY CONSERVATION:** Various energy conservation measures adopted in Indian railways viz. Power factor improvement, Energy Efficient fittings, Solar energy harness, fuel consumption on DG Set, BEE star rating appliances, ECBC codes.
- r. **LIFTS AND ESCALATORS:** Basics of Lifts and escalators and their parts, safety provision and basic troubleshooting in lifts and escalators. Maintenance schedule of lifts and escalators.
- s. **DG Sets:** Basics of DG sets, Latest CPCB norms of DG sets, Basic operation and maintenance of DG sets.
- t. **SOLAR PANELS:** Basic principle of Energy conversion from solar panels, Types of solar panels. Main parts of Solar plant, Basics of On-grid and Off grid solar plants. Net metering of solar plants.

2. TRAIN LIGHTING AND AIR CONDITIONING: Types of Coaches used in Indian railways. Systems of Train Lighting and Air conditioning in coaches, Self-Generating Coaches, ICF TL/AC Coach Generation system. Equipment, circuits and protection in ICF TL/AC coaches. Emergency feed extension in coaches. EOG and HOG systems in coaches Hotel Load converter and Interlocking panel. Equipment, power circuits and protection systems in LHB TL/AC coaches, Power car and Pantry car. Air Conditioning in ICF/LHB coaches. Maintenance schedules of ICF and LHB coaches. Duties of ACCI/ACCA, Pre-cooling of AC Coaches. Fire causes and prevention measures in coaches. SMIs, Modification Sheets and Technical circulars issued by RDSO and instructions by Railway Board and RDSO, Schedule and procedure of thermal scanning.

3. 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, M&P, E-procurement, IREPS, GEM procurement etc.

4. CONTRACT MANAGEMENT & FINANCIAL MANAGEMENT:

- a) Contract management
 - Tenders & Contracts
 - 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

5. GENERAL & ESTABLISHMENT KNOWLEDGE:

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

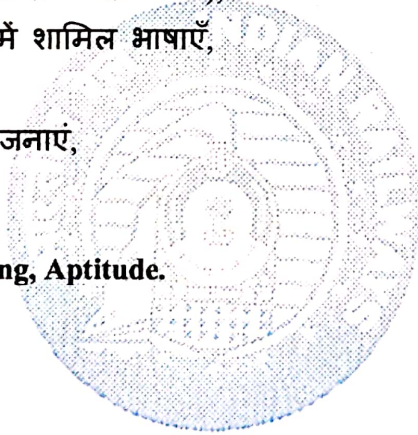
6. COMPUTER FUNDAMENTALS:

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

8. राजभाषा

- राजभाषा संवैधानिक प्रावधान,
- राजभाषा अधिनियम 1963 (यया संशोधित 1976),
- संविधान की आठवीं अनुसूची में शामिल भाषाएँ,
- राजभाषा कार्यान्वयन समिति,
- राजभाषा प्रोत्साहन पुरस्कार योजनाएं,
- हिंदी प्रशिक्षण

9. General Knowledge, Reasoning, Aptitude.



Syllabus for the selection/written test for promotion to the post of Junior Engineer (JE) Level-06 (GP-4200) against 25% intermediate Quota in **Electrical/TRS Department.**

1. Introduction to Railway organization and Electric department set up,

Basic Electrical Engineering, Measuring tools/equipment's, AC Motors, DC Motors, Transformer, Power Electronics, Circuit theory etc.

Conventional and Three-phase electric locomotives - Inspection schedules of electric locomotives & their periodicity, Loco equipment's their inspection schedules and overhauling & testing, VCB, PT, Pantograph, Loco bogie and body, Wheel, Axle, Axle box, Axle box bearing, Hurth coupling, Direct drive of loco, Battery, Compressors, Traction motor, Transformer, Traction converter, Auxiliary converter, VCU, Hotel load converter, Cab equipment, Relay, Pressure switch, Contactor, Auxiliary motors, Harmonic filter, Pneumatic brake system & Brake panels, Types of loco brakes, Pneumatic valves etc.

Loco lifting and lowering, Bogie assembling and disassembling & measurement, Safety items related to bogie, Clearances of bogie & body, Under frame checking, Wheel measurement, Wheel profiling, Fault diagnosis, Loco equipment's abbreviation, Codes/Manuals/SMIs/MS/TC pertaining to conventional and three-phase electric loco, Testing/Failure investigation/Case studies on electric locomotive, Power & control circuit of loco, Material handling jigs and fixtures, Up keep of work environment, Disaster management, Safety rules, Precautions, Earthing of equipment, Energy conservation, Working of PPIO and SLAM, Seasonal drives of loco like Summer; Winter & Monsoon, Fire prevention measures, Safety items of loco, M&P and T&P & their maintenance. Safety precaution of electrified area.

Important loco features - KAVACH, RTIS, CVVRS, VSS, RMS, DPWCS, Push-Pull Operation etc.

2. **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, M&P, E-procurement, IREPS, GEM procurement etc.

3. **CONTRACT MANAGEMENT & FIANANCIAL MANAGEMENT:**

- a) **Contract management**
 - Tenders & Contracts
 - Vigilance
- b) **Financial Management**
 - Railway accounting and financial procedures
 - Primary units, various demands

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- Works programme, M&P and RS programme
- Stages of budgeting (Revised and Budget estimates, Review, Final Modification)
- Roles of JE & SSE in Tenders & Contracts

4. GENERAL & ESTABLISHMENT KNOWLEDGE:

- a) D&AR Rules: Various definitions, the applicability, suspension and issue of minor penalty charge sheet, appeals
- b) Rules for engagement and discharge of casual labours / substitutes and knowledge of relevant sections, 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, HOER, Allowances etc.
- g) Basics of RTI and Disabilities Acts and our obligations & responsibilities.
- h) Establishment powers of JE & SSE in open line.

5. COMPUTER FUNDAMENTELS:

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

6. 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

8. General Knowledge, Reasoning, Aptitude.

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 PNC/EE/1000/1178

Syllabus for the selection of Tech-III/TRD

1	Introduction to working of Railway organization and electrical department set up, functions of various streams	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. Brief history and salient of electric traction on Indian Railway. e. Various units of Railways, Major Workshops, Production units, RDSO etc. f. Duties of Tech./TRD.
2	General description of fixed installation	a. Power supply arrangement at Traction sub-stations(TSS). b. Power supply for signaling. c. Remote Control and Communication arrangements. d. Communication facilities. e. Traction Power Control. f. Overhead Equipment g. Numbering of elementary sections
3	Principles for Layout Plans and Sectioning Diagrams	a. Introduction & Definitions. b. Sectioning arrangement. c. Numbering of OHE masts. d. Numbering of equipments.
4	Overhead Equipment-I	a. Foundations for OHE Structures. b. OHE Structures c. Cantilever Assembly d. Regulating Equipment e. Section Insulator f. Isolators, Droppers g. Neutral Section h. Conductors i. Tension length j. Overlap k. Jumpers l. contact wire height m. Stagger n. Encumbrance o. Span Length p. Implantation/Setting Distance q. Turnout and Crossover r. Clearances s. Bonding and Earthing t. Transmission lines
5	Overhead Equipment-II	a. Maintenance schedule for overhead equipment. b. Foot patrolling of OHE. c. Footplate inspection. d. Tower wagon operation, maintenance and safety while working. e. Safety rules for OHE.

		f. Current collection test (OLIVER-G) g. Environment effect on OHE.
6	Power Supply Installations - I	a. Traction Power Transformers b. Circuit breaker, Interrupter and Isolator c. Auxiliary Transformer d. Current Transformer e. Potential Transformer f. Lighting Arrestor g. Capacitor Bank h. Bonding and Earthing i. Batteries and Battery chargers j. Numbering Scheme in PSI
7	Power Supply Installations - II	a. Protective system and Relay setting. b. Maintenance Schedule for power supply installations. c. Safety during working at power supply installations d. Uses of Thermo- Vision Camera, CONDITIONING Monitoring PSI Equipment's.
8	2X25 kV ac Traction System	a. Introduction and description of 2X25kV ac Traction System.
9	High Rise OHE	a. Various parameters of High Rise OHE.
10	Remote Control and SCADA system	a. Introduction. b. Salient features of SACDA c. System Description d. Maintenance schedule.
11	Traction Power Control	a. Operation b. Duties of CTPC and TPC c. Power blocks and PTW
12	Breakdown and Electrical accidents	a. Sub-station and switching station breakdown b. Breakdown of RC equipment c. OHE breakdown d. Electrical accidents
13	Preparation for commissioning of new assets	a. Pre-commissioning inspections. b. Detailed joint inspection of OHE.
14	Safety precautions on electrified section	a. Movements of tower car, caution order, safe working rules in 25 kV & 2x25 kV territory. b. Protection of staff. c. Induction effects of 25 kV ac 50 Hz Single Phase Traction. d. Over Dimensioned Consignments (ODC) & JPOs. e. Regulations for power line crossings of Railway track- Maintenance schedule & items to be attended. f. Safety precautions to be taken for PF shelters, fencing, FOBs while working in the vicinity of 25 kV. g. Operation & importance of locking of interlocked isolators. h. Importance of permit to work, earthing, bonding, temporary jumpering of rails in case of rail fracture. i. New technology & case studies.
15	Electrical Accidents	a. General safety rules, importance of safety belts, helmets, ladders. b. Electrical shock causes, Prevention & treatment etc. c. Preventive measures to avoid electrical accident.

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| | d. Measures to be taken in case of electrical accident.
e. Fire causes and safety measures and various codes.
f. First aid for injury, burns etc. |
| 16 | Establishment rules (HRMS, UMID, RESS, Leave rule, D&AR rule, Pass rules, HOER and Allowance etc.), |
| 17 | Rajbhasha – Hindi Rajbhasha Rules 1976 and its applicability on Railways, |
| 18 | General Knowledge, Reasoning, Aptitude. |

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Syllabus for the selection/written test for promotion to the post of Tech-III Level-02 (GP-1900) against 25% Intermediate Quota in **Electrical/TRS Department**.

Introduction to Railway organization and Electric department set up,

Basic Electrical Engineering, Measuring tools/equipment's, etc.

Safety Precaution in Electrified areas, Conventional and Three-phase electric locomotives - Inspection schedules of electric locomotives & their periodicity, Loco equipment's their inspection schedules and overhauling & testing, VCB, PT, Pantograph, Loco bogie and body, Wheel, Axle, Axle box, Axle box bearing, Hurth coupling, Direct drive of loco, Battery, Compressors, Traction motor, Transformer, Traction converter, Auxiliary converter, VCU, Hotel load converter, Cab equipment, Relay, Pressure switch, Contactor, Auxiliary motors, Harmonic filter, Pneumatic brake system & Brake panels, Types of loco brakes, Pneumatic valves etc.

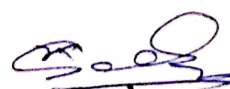
Loco lifting and lowering, Bogie assembling and disassembling & measurement, Safety items related to bogie, Clearances of bogie & body, Under frame checking, Wheel measurement, Wheel profiling, Fault diagnosis, Loco equipment's abbreviation, Codes/Manuals/SMLs/MS/TC pertaining to conventional and three-phase electric loco, Testing/Failure investigation/Case studies on electric locomotive, Power & control circuit of loco, Material handling jigs and fixtures, Up keep of work environment, Disaster management, Safety rules, Precautions, Earthing of equipment, Energy conservation, Working of PPIO and SLAM, Seasonal drives of loco like Summer; Winter & Monsoon, Fire prevention measures, Safety items of loco, M&P and T&P & their maintenance.

Important loco features - KAVACH, RTIS, CVVRS, VSS, RMS, DPWCS, Push-Pull Operation etc.

Establishment rules (HRMS, UMID, RESS, Leave rule, D&AR rule, Pass rules, Allowances, HOER etc.),

Rajbhasha – Hindi Rajbhasha Rules 1976 and its applicability on Railways,

General Knowledge, Reasoning, Aptitude.


31/12/23
By CEC/LOCO/1151

Syllabus for the written examination for the post of ALP (Diesel) against 50% PRO earmarked Lateral Induction.

Syllabus:

1. Basic knowledge in English with ability to read and write.
2. Mathematics of high school level like percentage, profit loss, surface area, volume, fraction, trigonometry, geometry, algebra etc..
3. General Knowledge.
4. Basic knowledge of working of electric locomotives (Conventional and three phase locomotives).
5. Official language policy & rules.

Dy. CEE Lokbati (R/117)

CELE

27/11/17, 13/11/17

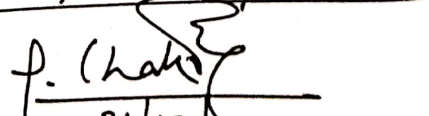
13/11/17

Questions on mathematics shall be on topics given above but level will not be defined in both Diesel & Electric ALP cases.
25/11/17

Syllabus for selection to the post of Chief Loco Inspector (CLI) in Level-7 IN 7th CPC of Pay Matrix, Grade Pay ₹4600/- in ECR

SN	Subject
1	Knowledge of General Rules for Indian Railways with SRs, special instructions and its amendments. Safety and technical instructions issued by Railway Board. Zonal Headquarters and respective divisions. Knowledge of Accident Manual and Disaster Management rules/inspections, firefighting techniques, rendering in first aid to electrocuted person etc.
2	Duties of Loco/Fuel inspector, CCC, CTLC/CPNL, CC/CPNL and Loco Pilot instructor (Technical Training).
3	Knowledge of control organization at Divisional/Zonal level, CMS and its application, SLAM and its application and preventive maintenance schedule of Locomotives.
4	Knowledge of working time table, rest rules pertaining to running staff, yard stick for running and non-running staff, knowledge of Running Room and Rest Room Management, Guidelines/Instructions on drunken (Alcoholic) policy to running staff.
5	Knowledge of RTIS, FOIS/COIS/PAM, DPWCS, EoTT, HOG working, long Haul train formation and operation, load trial/haulage capacity of different AC/DSL locomotives.
6	Knowledge for preparation of Loco links, crew links, crew review, power plan etc. Optimum knowledge of P/Way, Signaling and C&W.
7	Basic knowledge in engine statistics, utilization and outage of locomotives, EKMs, GTKM, NTKM, SEC, SFC etc.
8	Knowledge of AC traction manual Vol III & Electric/Diesel loco operation and maintenance.
9	Knowledge of 3 phase AC and conventional / DSL locomotives, 3 phase & conventional MEMU/EMU/DEMU, Amrit Bharat/Vande Bharat trains, modifications in rolling stocks and trouble shooting techniques.
10	Knowledge in working Air braked trains, its various components/equipment, modifications and different type of formations/rakes including Air Spring Suspension rakes.
11	Knowledge of Neutral section, SP, SSP and OHE installation, pantograph Entanglement.
12	Kavach System.
13	Establishment rules: Knowledge in various welfare measures/benefits/allowance to running staff, HOER rules. 9 hrs implementation rules for running staff. Railway Servant Discipline and Appeal rules, conducting departmental enquiries, Railway servant conduct rules, leave and pass rules etc.
14	Rajbhasha Knowledge of Rajbhasha, Related orders and procedures.
15	General Knowledge: Suitable arithmetical calculations, general knowledge, current affairs etc.

Certified Syllabus for CLI.


 31/12/2025
 CELE/ECR