



दक्षिण पूर्व मध्य रेलवे
South East Central Railway

मुख्यालय, कार्मिक विभाग, प्रथम तल, महाप्रबंधक कार्यालय, बिलासपुर (छ. ग.)
HEAD QUARTER, PERSONNEL DEPARTMENT, 1st FLOOR,
GM's OFFICE, BILASPUR (C.G.) 495004

No. P-HQ/CON/452/EL-30%/e-12.93.68/135

Dated :20/03/2024

AGM, SECRETARY TO GM/SECR,
PCEE, CAO/Con, SDGM/SECR,
CELE, CEGE, CSO/SECR, CEE (Con),
DRM/BSP, R, NGP, CWM/WRS/R & CWM/WS/MIB,
DG/NAIR/VADODARA, Dy CPO (Con). /BSP, SPO/HQ.
GM (P) SER/GRC, GM (P) ECOR/BBS, GM (P) CORE/ALD

Sub:- Selection (Special Drive) for formation of a panel of AEE (Group-'B') against 30% LDCE of Electrical Department in SEC Railway for the vacancy cycle of 01/01/2023 to 31/12/2024.

Ref:- Railway Board's letter No. E(GP)2022/2/4, Date:14/12/2023.
Railway Board's letter No. E(GP)2022/2/4, Date:14/03/2023.

1. In reference to the above, Board has decided that a special Group B' Selection drive shall be carried out to fill up the gazetted vacancies prevailing on the Railways. Accordingly, it has been decided to fill up these vacancies by holding another round of 70% Selection and 30% LDCE through centralized CBT for promotion to Group B' posts by NAIR. Accordingly. Examination/ CBT against 30% LDCE to be conducted by NAIR/BRC tentatively on 23/06/2024. The selection will be held for formation of panel of AEE (Group-"B") in scale Rs.9300-34800/-+(GP Rs.4800/-), PB-2 (Pay matrix Level-08) (7th PC) against 30% LDCE for vacancies as mentioned below.

Post	Vacancies			
AEE (Gr."B")30% LDCE	UR	SC	ST	Total
	02	00	00	02

2. **Eligibility Condition:** - For Group "B" selection (30% LDCE quota), Group "C" employees having lien in SEC Railway, working in grade the minimum of which is in PB-2 Rs. 9300-34800 + GP Rs. 4200/- (6 PC) or Level-06 (in 7 PC) and above with five (05) years of non fortuitous service in grade as on **01/01/2023** (including non fortuitous service rendered in the corresponding pre revised grades) of Electrical Department including running staff of combined seniority in Electrical/ Mechanical Department (for running staff equated stationary grade vide Estt. Srl. No. 90/2000, RBE No.92/2015 is enclosed in (Annexure "B") are eligible to participate in the above 30% LDCE examination in terms of R.B.E. No. 216/2019 circulated under SECR's Estt Rule No. 359/2019 and Para-6.3 of Mater Circular No.-68 dated 08/07/2019. It is made clear that no adhoc service will be counted for computing the eligibility for the purpose of above selection.

3. **Scheme of Examination/Selection Procedure:** In terms of Railway Board's letter No.E(GP)2022/2/4, Date:28/06/2022, detailed instructions of Centralized Computer Based objective type examination (CBT) have been communicated. Accordingly, 30% LDCES selection will be conducted by DG/NAIR, LDCE 30% will be

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one stage only and will comprise of Single Paper of 150 marks comprising 100% Objective type Multiple Choice Questions with following distribution of marks.

I	Technical (Professional) subject	80 marks
II	General Knowledge including optional Questions of 15 3 marks on Official language Policy & Rules Establishment & Financial Rules	40 marks
III	Establishment & Financial Policy & Rules	30 marks
IV	Duration	03 Hours
V	Qualifying Marks	90 marks
VI	Syllabus	SECR,s Estt. Rule No.308/2022 Enclosed(Annexure-C)
VII	Question Paper will have 175 questions out of which 150 questions are to be attempted.	
VIII	One mark will be allotted for every correct answer. There shall be negative marking for incorrect answers. One third (s) of the marks allotted for each question will be deducted for every wrong answer.	
IX	Since there is no post reserved for SC & ST community hence pre-selection coaching is not required as per RBE No.142/2019 .	
X	VIVA-VOCE TEST: The selection will comprise of Written/ CBT examination followed by viva-voce test. Only those who qualify in the Witten/ CBT examination and pass the prescribed standard of medical examination, in terms of (para-20.1 & 2) of Master Circular-68, Dated: 08/07/2019 and Board's letters No. E(GP)80/2/8 dated 31/10/91, will be called for the Viva-voce test and without medical fitness certificate candidates will not be eligible for attending Viva-voce test. Candidates will be called for viva-voce in terms of Estt. Rule No. 65/2023.	
XI		Maximum Marks
	Record of Service	25
	Viva-voce	25
		Qualifying Marks
		30 marks (including minimum 15 marks in Record of Service)

4 Time line for date of submission of application and consolidated statement:-

S/N	Subject	Closing Date
I	Application to be submitted in the prescribed proforma in (ANNEXURE- A) by the eligible candidates through their controlling officer to the concerned Establishment officers/ Personnel Branch for verification /scrutinizing of service particulars/ eligibility etc. Concerned Personnel officers should forward only the eligible applications in proforma	05.04.2024
II	Concerned Personnel officers should forward only the applications of eligible candidates in proforma (Annexure-"B") to GAZ(CONF.) Section, PCPO Office, HQ.	15.04.2024

- Scrutiny of the applications:** The concerned Personnel Department of the HQ/Division/Workshop/Units should scrutinize the application and verify the eligibility along with the Service Record maintained by them and to certify their eligibility for each such candidate. After scrutinizing the applications, concerned Personnel officers should forward such applications in the prescribed proforma as in

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Annexure-"B" to GAZ(CONF.) Section, PCPO Office, HQ Office, which will be examined as per extant Rules.

While forwarding the names Controlling officers/ respective Personnel officers should ensure that particulars mentioned are verified and certified as correct. **The concerned Personnel officer must ensure that all the columns (ELIGIBILITY) of the enclosed (Annexure-B) are properly filled in before forwarding the applications/ consolidated statement to this office.**

In case any candidate is found ineligible at any stage of the above selection, his candidature will be summarily rejected. Applications of staff who do not fulfill the eligibility criteria as mentioned above need not be forwarded to this office. It may also be noted that incomplete statements furnished by the Divisions/ Units will not be entertained. After closing date any application should not be entertained /accepted. It may be ensured that the applications of candidates working under Construction Organization should be submitted through Dy.CPO/Con/Bilaspur.

6. The following may be kept in mind while forwarding the applications by the Division/Unit/HQ in-charge:-

a)	Certification of all the particulars by the Personnel Officers/Officer in-charge concerned.
b)	Certification of non-fortuitous service excluding ad-hoc service.
c)	Lien of applicant in Department concerned especially for those on deputation.
d)	Wide publicity is to be given to this and all the subsequent notification on this selection by placing copies on notice Board, Training Centers and all other important places.
e)	Concerned Personnel Officers-in-charge of the Divisions/Units/HQ may co-ordinate and ensure that the notification and all subsequent notification of this selection are circulated in all small units located in their territorial jurisdictions including staff on deputation, training, long sick (PMC/RMC), leave, working in other offices such as RE, Railway Board, RITES, RDSO, KRCL, CRIS, COFMOW, IRCTC etc. In case any candidate is on leave or on deputation to other Railways/Units or on sick list, the controlling officer concerned should send necessary advice to the authority under whom he is working or the medical authority as the case may be acknowledgement obtained. This may be ensured to avoid any representation later on this issue.
f)	No Supplementary examination will be held.
g)	The Controlling Officers; Dy. CPOs/Sr. DPOs/DPOs/APOs may please ensure that the APARs for the last five (05) years completed in all respects and also the updated Service Records of the candidates who volunteer for the above selection, are available with them in advance to ensure prompt supply thereof to Dy CPO (Gaz) at short notice.

7. If any employee of HQ/Divisions/Workshops/Units is on deputation/outside cadre or working against ex-cadre posts whose lien is maintained by this Railway should be informed about the selection provided they fulfill the conditions through their respective officers without fail.

Dy.CPOs, Sr. DPOs, DPOs, SPOs & APOs of all concerned may personally ensure displaying of the notification in the prominent notice board of the respective officers of HQ/Divisions/Unit.

The notification is also available on this Railway's web <http://www.secr.indianrailway.gov.in>. **RECRUITMENT ->HQ-> GAZ SECTION.**

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All the Divisions/Units & applicants are advised to daily the above website for any updates in the matter. This notification is being issued as per existing provisions instructions of selection of Group-B post of AEE. In case any changes in the existing procedure /instructions are issued by Railway the same will be communicated to all concerned and will be uploaded in the Railway's website in due course.

Encl: As above.


(Prateep Mishra)

Deputy Chief Personnel Officer(Gaz)
for Principal Chief Personnel Officer

Copy forwarded for information and necessary action to:

1. PS TO PCEE/SECR, DY.CPO/HQ & IR
2. Sr.DPO/DPO/BSP.R & NGP, Sr.DEE(OP), (TRD), (G)/BSP, R NGP
3. AWPO/WRS/R, AWPO/WS/MIB/NGP, PRINCIPALMDZTI/BSP
4. GS/SECRM/CBSP, GS/SECRPOA, GS/AISC-ST/Association/BSP.
5. ZP/SECROBCEA/BSP, NOTICE BOARD

 .20/3/2024
for Principal Chief Personnel Officer

Paste a
photograph

PROFORMA for 30% LDCE (Group-B)

1	Applied for the post:	
2	Name :	
3	Father's Name:	
4	Correct IPASS NO. (Eleven (11) Digit)	
5	HRMS ID (must be filled correctly)	
6	Present Designation & Scale /GP/ Level	
7	Present place of Posting/ Division/ WS /Station/ Unit	
8	Mobile No.: (Only one no. be provided, which is in use)	
9	Latest Email-ID address (must be correct)	
10	Controlling Officer	
11	Date of Birth (DD/ MM/ YYYY)	
12	Community (UR/ SC/ ST)	
13	PwBD category or not (Yes or No)	YES or NO _____
14	If PwBD, indicate category	Category: _____
15	If PwBD candidate, indicate for requiring SCRIBE (only those PwBD staff /employee who are entitled for facility of scribe).	YES or NO _____ If yes enclose necessary medical PwBD certificate (Appendix-I) issued by authorized Govt. Medical /Health Officer, in terms of Estt. Rule No.343/2022 (RBE No.162/2022) and (Appendix-I)
16	Lien holding in Railway, Division (Should be maintained in SECR)	
17	Date of appointment	
18	Designation in which initially appointed and scale/GP/Level	
19	Date of Regular Promotion or appointment in GP Rs. 4200/- (6 th PC) / Pay Level 6 of (7 th PC)	
20	Date of Regular Promotion or appointment in GP Rs. 4600/- (6 th PC)/ Pay Level 7 of (7 th PC).	
21	Length of non-fortuitous service in scale Rs. 5000-8000 (5 th PC), PB-2 Rs. 9300-34800, with GP Rs. 4200/-(6 th PC)/ Pay Level 6 of (7 th PC) as on 01/01/2023.	Year.....Month.....Days.....
22	Length of non-fortuitous service in scale Rs.6500-10500/- (5 th PC), PB-2 Rs.9300-34800 + GP Rs. 4600/- (6 th PC)/ Pay Level-7 of (7 th PC) as on 01/01/2023	Year.....Month.....Days.....

Signature of the candidates

Signature of the immediate supervisor forwarding application Office seal & Date:

Forwarded to controlling officer

Forwarded to Headquarter

Signature of Controlling Officer with seal

Forwarded to Dy.CPO(GAZ)/SECR. The particulars given by the employee against **column No.1 to 22** have been scrutinized/ verified & found correct as per the service record and the above named employee is eligible / not eligible, please (✓) to appear in the selection **against 30% LDCE** quota. It is certified that no Adhoc or fortuitous service has been taken in to account for computing the eligibility as on **01/01/2023**.

Signature and name with official stamp of
Personnel Officer of concerned Divn./ Unit

PROFORMA for 30% LDCE (Group-B), For the post of :

(To be verified & attested from available records)

1	2	3	4	6	7	8	9	10	11	12
Sr. No	Name	Correct I-Pass No. (11 Digit)	Correct HRMS-ID	Present Designation/ Unit	Only one Mobile No. Which is in use	Email id	Place of Posting	Divn. /WS/ Unit	Controlling Officer	DOB (DD/MM /YYYY)

13	14	15	16	17	18	19	20
Community (UR /SC/ ST)	PwBD or Not (Yes/ No.)	If yes PwBD category	If a PwBD, whether scribe is required (Yes/ No) Enclosed valid PwBD certificate	Present Grade/ Scale GP Rs.4200/-, or GP Rs.4600/-	Date of Regular promotion in scale GP Rs.4200/-	Date of Regular promotion/ appointment in scale Rs. 6500-10500/- (5 th PC) (pre-revised)/ GP-4600/- (6 th PC) / Level-7 (7 th PC)	Remarks Eligible/ Not eligible

(*) The above information (Format) to be provided to GAZ/CONF/Section, HQ/SECR/BSP in soft copy in Pen drive also.

Signature of Concerned
Personnel Officer

Comparison of grades of running staff with those of stationary staff for the purpose of promotion /selection to Group 'B' posts. (In terms of Boards letter No E(GP)2005/2/87 dated 18/08/2015 (RBE.No. 92/2015).

Designation	Scale of Pay applicable (VI CPC)	Scale of stationary post to which should be equated (VI CPC)
Loco Pilot (Mail/Exp.)	PB-2 + GP Rs. 4200+1000 addl. allowance	PB-2 + GP Rs. 4600
Loco Pilot (Passenger)	PB-2 + GP Rs. 4200+500 addl. allowance	PB-2 + GP Rs. 4600
Loco Pilot (Goods)	PB-2 + GP Rs. 4200	PB-2 + GP Rs. 4600
Loco Pilot (Shunting)I (NF)	PB-2 + GP Rs. 4200	PB-2 + GP Rs. 4200
Loco Pilot (Shunting)II	PB-1 + GP Rs. 2400	PB-2 + GP Rs. 4200
Sr. Asstt. Loco Pilot (NF) (80%)	PB-1 + GP Rs. 2400	PB-1 + GP Rs. 2400
Asstt. Loco Pilot (20%)	PB-1 + GP Rs. 1900	PB-1 + GP Rs. 2400
Mail / Express Guard	PB-2 + GP Rs. 4200 +500 addl. allowance	PB-2 + GP Rs. 4600
Sr. Passenger Guard	PB-2 + GP Rs. 4200	PB-2 + GP Rs. 4600
Sr. Goods Guard (NF)	PB-2 + GP Rs. 4200	PB-2 + GP Rs. 4200
Goods Guard	PB-1 + GP Rs. 2800	PB-2 + GP Rs. 4200

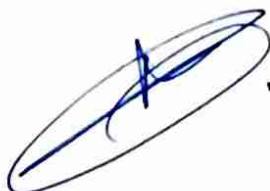
Common Syllabus for promotion to Group- B posts - 70% selection and 30% LDCE.

Syllabus for Establishment Rules:

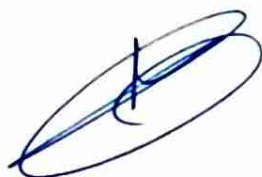
1. Organization of the Personnel Department in Railways objectives functions and policies of Personnel Department.
2. Recruitment and Training, Classification of Services, Recruitment in Different services, Railway Recruitment Boards & Railway Recruitment Cells Compassionate Ground Appointments, Initial & 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

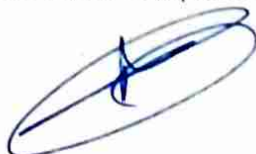


Syllabus for 30% LDCE for promotion to Group 'B' post of AEE in Electrical Department.

A. Professional Subjects :

Part I : General Electrical Engg.

1. Electrical Circuits: Electrical Circuit Elements (Resistance, Inductance and capacitance), Voltage and Current Sources, Ohm's law, Kirchoff's Voltage and Current Laws, DC & AC circuit analysis, Magnetic circuits and analysis, Poly phase circuit analysis.
2. Electronic Devices & Analog Electronics: Energy Band Theory of Solids, Intrinsic and Extrinsic Semiconductors Doping, Doping Materials, Carrier Mobility, Conductivity, Semiconductor Diodes, Diode Rectifiers, Bipolar Junction Transistor, JFET, MOSFET, Transistor Biasing Circuits. CE, CB and CC modes of transistor. Using transistors as amplifiers and switches. Characteristics of an Operational Amplifier – Applications of Op-Amp as an Inverting and Non-Inverting Amplifier, Integrator, Differentiator, Summing and Subtracting Amplifier and Logarithmic Amplifier. Differential Amplifier - Calculation of common mode rejection ratio, Active & Passive Filters.
3. Digital Electronics: Number Systems, Basic Logic Gates & Boolean Algebra, Digital Logic Gate Characteristics, Minimization Techniques, Combinational Logic Circuits, Flip flops and Sequential Circuits.
4. Power Electronics: Power Semiconductor Devices (Diodes, BJT, MOSFET, SCR, GTO and IGBT) and their characteristics, selection of devices for different power electronics applications, Working of single phase and three phase rectifiers, H-bridge inverter, Three phase voltage source inverter, PWM converters, Harmonic analysis and power factor improvement, AC machine control, VVVF drives.
5. Electrical Engg. Materials: Properties & applications of Electrical insulating materials, Magnetic materials, Conducting materials & Semiconducting materials.
6. Electrical Machines: DC Machines, Induction Machines and Synchronous Machines. Losses in rotating machines. Single phase and three phase transformers. Losses and efficiency of transformers, Machine Drives.
7. Renewable Energy Sources: Climate change, Global warming, Various sources of Renewable energy- Resources and applications, Solar Cells, Rooftop solar and land based solar plants- Concepts of Basic Design, construction and maintenance, Off grid and Grid connected solar plants, Wind turbines, Net Zero carbon emission, ECBC, Round the clock green energy, Energy Storage systems, Policies and regulations , Net and Gross metering, Business model, tendering.
8. Power System and Protection: Basic concepts of electrical power generation and various equipment. Concepts of transmission lines, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution

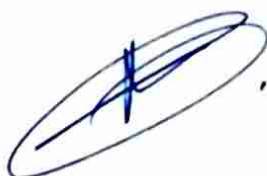


and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, Load flow methods, Power factor correction, Symmetrical components, Symmetrical and Asymmetrical fault analysis, Principles of various protection system, Circuit breakers, Latest research in the field of power system.

Part II : Railways Electrical Engg

1. General Services:

- a. Power Supply arrangement: Radial distribution system, Looped(Ring Main) distribution systems. Layout & Equipment at Distribution sub-station. Operation & Maintenance of sub-station, Various testing at sub-station, overhead & underground distribution, protective devices & their coordination. Construction, erection & commissioning of new sub-station and distribution lines. Basic features of PVC and XLPE cables. Cable rating and derating, Cable laying. Concept of average demand, peak demand, load factor & electrical billing. Power factor improvement, Electrical & fire safety, Safety auditing of sub-station, concept of energy audit, Functions of Electrical Inspector to Government (EIG) in Railways. Power line crossing, Electricity Act-2003, CEA Regulations, SCADA and Substation automation. Earthing arrangement.
- b. Building Electrification: Types of various wiring methods, metering & safety measures. Wire, switchgears & fittings used for wiring, Energy efficient appliances, scale of fittings as per policy in various types of quarters, various types of Tariffs, commercial connection, concept of prepaid and postpaid metering, concept of smart meters. Safety coordination, Electrical accidents and prevention.
- c. Illumination & Lighting: Various parameters related to illumination, Different types of illumination sources, lighting methods, classification of lux levels at various types of stations, yard lighting & street lighting. Passenger amenities at Railway stations.
- d. Water supply: Types of water supply system, Pumping system, Classification of pumps, Comparison of various pumps, fluid theory, discharge calculations. Centrifugal pump, turbine pump, Submersible pumps, characteristic curve of pumps, efficiency. Cavitations & priming of pumps, necessity of multistage pumping, storage capacity and purification of water. Installation, maintenance & troubleshooting of pumps, Starter & drives of pumps, automation of pumps.
- e. Lift & Escalator: Working of Lift & Escalator, Installation of Lift and Escalator. Maintenance, various safety devices, control panels & Safety aspects.
- f. Air Conditioning & Refrigeration: Theory of air conditioning, refrigeration cycles, Various types of refrigerants, window/split/package AC unit. Central air conditioning plant, VRF system, air cooling systems, planning for capacity and drives for refrigeration plant, Maintenance and troubleshooting.

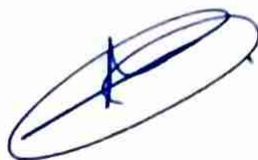


- g. **Energy Conservation:** Need of conservation of energy, Various measures being taken by railways to conserve energy in the field of Electrical General Services. Necessity and implementation of Open Access in Indian Railways. Energy conservation Act.

2. Traction distribution:

- a. **OHE:** Basic design concepts of TRD system of conventional and 2x25kV system. Types of overhead equipment. Sectioning principles of OHE. Various parts of OHE. Foot Patrolling, current collection, Tower wagons, seasonal & cyclic checks, maintenance Schedule, Preventive maintenance Tools, failure investigation of OHE, earthing and bonding. Railway Electrification and process of construction. Power Blocks & Procedure to obtain it.
- b. **PSI:** Schematics of 1x25kV and 2x25kV traction substation with names/ratings of various equipment, protection scheme for TSS. Fixed and dynamic PF correction, Feeding stations, SSP & SPs, 132 kV transmission lines, PSI equipment. Maintenance and failure investigation of PSI equipment.
- c. **SCADA and Miscellaneous items:** Operation and maintenance of remote control, traction power control organization, permit to work, emergency arrangements, coordination with operating and other departments. Liaison with supply authorities, maintenance and failure investigation of SCADA equipment.
- d. **NDT techniques, Open Access, safety precautions for electrified sections, Latest development in TRD, MSG meetings. Instructions issued by Railway Board, RDSO's TI/MI, TCs, IRSOD & ACTM.**

3. Train Lighting and AC Coaches: Systems of Train Lighting and Air conditioning on coaches, Self Generating Coaches, ICF TL/AC Coach Generation system. Circuits and protection in ICF TL/AC coaches, Emergency feed extension in coaches. Air Conditioning in coaches, Heat Load Calculation, Precooling and Pulldown Tests. Dynodrive test. 25 kVA coach inverter, Water raising apparatus. EOG and HOG systems in coaches- Hotel Load converter and Interlocking panel. Power and control circuits and protection systems in LHB TL/AC coaches, Power car, Pantry car, AC Double Decker, AC 3Tier Economy and LSLRD coach. HVAC Microcontroller and Electronic equipment in LHB coaches. LHB pantry car and its equipment. Push pull train operation. Maintenance schedules of ICF and LHB coaches, Pantry cars and Power cars. Manufacturing, POH and IOH activities of coaches. Commissioning tests and Special Repair. Circuits, working and maintenance of Passenger amenities items in ICF/LHB coaches. Coaching depot working, Primary & Secondary maintenance, Sick line attention, Pit occupation chart, Rake links and Coach requirement, Staff yardsticks and benchmarking. Duties of ACCM/ACCA. Pre-cooling of AC Coaches. Features of ICMS. Unit exchange spares. Fire causes and prevention measures in coaches. SMIs, Modification Sheets and Technical circulars issued by RDSO and instructions by Railway Board and RDSO. Reliability Action plan, recent developments in coaches.



4. Electric Locos: Organizational structure and duties of officers & staff. Conventional AC & 3 phase locomotives on IR. Equipment in locomotives, their functioning / operations, maintenance / overhauling and testing parameters & maintenance schedules. Reliability & safety action plans. Traction Power Circuit, Auxiliary Circuit, Control Circuits and Pneumatic Circuits. Different types of braking arrangements. Locomotive maintenance schedules & various tests to be carried out. Working of Electric Loco Shed & Electric Loco Workshop. Safety items and safety checks involved in safe locomotive operation. Relevant paras of ACTM, Accident Manual, G&SR, IR SOD and Instructions issued by Railway Board, RDSO and CLW. Latest developments in the field of electric locomotives.

5. EMU and MEMU/Metros: Concept of EMU/MEMU/Metro trains, various types of EMU/MEMU stock, Conventional & 3 phase EMUs & their salient features. Different types of brakes used in EMU/MEMU/Metros. Power circuits, auxiliary, control circuits. Mechanical components and its functions. Different electrical equipment and its functions. Inspection/Maintenance/Overhauling schedules of EMUs/MEMU/Metros. Safety precautions and fire prevention in EMU/MEMU/Metros. Train Control Management System(TCMS). Recent developments in EMU/MEMU/Metros.

6. Electric Loco and EMU Operation: Organizational structure and duties of officers & staff. Crew management – Training, Monitoring & Counseling. Crew & loco links. HOER Rules. Loco utilization. SPAD (Signal Passing At Danger). Management of Crew lobby, running room, trips shed & TLC / Power controller office. Working of CMS & FOIS. Safe, punctual & efficient loco / EMU operation with online troubleshooting of locomotive / EMU failures. Relevant paras of ACTM, Accident Manual, G&SR and Instructions issued by Railway Board & RDSO. Latest developments in the field of electric locomotives / EMU operations.

7. Store Matters: Procedure related to procurement of stock items and non-stock items, distribution and accountal of stores. Receipt and custody of stores. Sale of surplus stores. Inventory management, ABC Analysis. Procurement through GeM, IREPS. Schedule of powers under stores matters.

8. Tenders and Contracts: Work proposals, Types of estimates & estimation stages, procedure of survey, Type of tenders, earnest money, Performance guarantee, security deposit, technical & financial eligibility criteria, Merits and demerits of EPC tender. IRPMS. Procedure and stages of e-tendering through IREPS, General Condition of Contract (GCC) for works and service contracts, various provisions in Schedule of Power (SOP) under works matters, Basic principles of Project management, quality control in electrical works.