



SOUTHERN RAILWAY

**Headquarters Office
Personnel Branch
Chennai – 600 003
Dated: 23 /12/2020**

No. P (G) 532/VII/LDCE/2020-22

PCEE, CAO/CN/MS, PCSO, CELE, CEDE, CESE, CETE, CEGE, CEE/EEM,
CEE/CN/MS, CPD/RE/MS,
Sr.DEE/ OP/ TRD/G/RS-MAS, AJJ, TBM, RPM, AVD, ED, SA, TPJ, MDU, PGT, TVC
Dy CEE/Loco-OP/EMU, LW, CW, S- HQ, PER, CN/MS, CON/ERS, Sr DSO/TVC
DEE/ W/OP/RS/Chg- MAS, TVC, AJJ, PGT, SA, TBM, VLCY, RPM, AVD, ED
XEE/RE/MS, WM/Elec/LW/PER,
DRM/MAS, TPJ, MDU, PGT, TVC, SA
DRM/P/MAS, TPJ, MDU, PGT, TVC, SA
CWM/CW/PER, LW/PER, GOC, PTJ WPO/GOC, WPO/C&LW/PER, APO/C&LW/PER
SPO/RE/MS, GM/P/CORE/ALD
The MD/CRIS/NDLS,

The Managing Director, RITES, 27, Perakamba, New Delhi-110 001.,

The Director/RDSO, Manak Nagar, Lucknow-226011.

The Managing Director, RITES Mount Chambers, 4th Floor 758, Anna Salai, Chennai – 2,

The Managing Director, IRCON, 13, Pallika Bhavan, RK Puram, NDLS

The Joint General Manager/F, RVNL, Mezzanine Floor, Tirumalai Railway Station, Mylapore, Chennai-600004

Sub: Selection for promotion of Group "C" employees to Group "B" service as ADEE/AXEE in Level 8 (VII PC) through LDCE (30%) – Electrical Engineering Department. (UR-5, SC-1, ST-1).

Ref- Railway Boards L.No.E(GP)2018/2/31 dated 16.12.2020

Particulars	Date
Last date for submission of application to the respective units by the applicants	13.01.2021
Last date for receipt of applications at Headquarters from the respective units	27.01.2021

I) Proposal:-

It is proposed to conduct a selection for promotion from Group 'C' to Group 'B' service for the post of ADEE/AXEE in in Level 8 (VII PC) in the Electrical Engineering Department through Limited Departmental Competitive examination (30%).

II) Vacancies to be filled under LDCE scheme are :

UR	SC	ST	TOTAL
5	1	1	07

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III) Eligibility Criteria :

i) Non-Ministerial Group 'C' employees working in the Electrical Engineering Department holding the post in Level -6 (Rs 35,400-1,12,400) and above in the pay matrix with five years regular service in level 6 and above in the pay matrix **as on 19.03.2020** are eligible. (including non-fortuitous service rendered in the corresponding pre-revised grades) including apprenticeship period as on 19.03.2020 are eligible.

ii) The Running staff with Grade pay Rs 2400 (Level 4) equivalent with stationary post with G.P. of Rs.4200 (Level 6) and above, in terms of Board's letter No.E(GP)2005/2/87 dt.25.04.2011 are also eligible to be considered for promotion to Group B service in the Electrical Department under extant rules. However, Sr ALP (N/F) 80 % are not eligible to appear for the selection in terms of Boards letter No E(GP) 2005/2/87 dated 18.08.2015

iii) Running Staff who have trained in Electrical Traction are also eligible to apply for this selection.

iv) Running staff who are trained in both Diesel & Electric traction have to exercise option to appear for ADEE/AXEE examination. If they exercise option for ADEE/AXEE Selection in Electrical Engineering Department they are not eligible for ADME/AWM selection in Mechanical Department .Please note that option once exercised is final and no change will be permitted later on.

v) Running staff who have opted for ADME/AWM selection in Mechanical Department in the earlier selection shall not apply to appear for the ADEE/AXEE examination.

(vi) Only such categories of staff as are otherwise eligible to be considered for promotion to Group 'B' service in the Electrical Engineering Department as per extant rules will be eligible to appear in the LDCE for promotion to Group 'B' service.

(vii) Only those who volunteer and tender their application within the stipulated time will be considered for the selection.

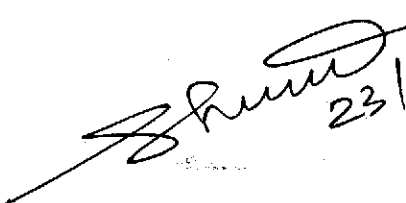
(IV) METHOD OF SELECTION

A. There shall be Pre qualifying examination consisting single paper of 100% objective type questions

B. Candidates to the extent of 5 times of vacancies in respective communities, in the order of merit, subject to securing qualifying marks will only be permitted to appear in the main examination

C. The selection is based on the performance in main examination to adjudge the professional ability, viva-voce test and Record of Service of the preceding five years from the date of viva voce.

D. In order to qualify, a candidate must secure the minimum prescribed qualifying marks in the written examination, in the viva-voce which includes record of service, separately and also in aggregate.


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5. PRE-QUALIFYING EXAMINATION-

In terms of Railway Board Letter No E(GP)2018/2/31 dated 19.03.2019(RBE no 53/2019, PBC No 47/19 dated 19.03.2019), there shall be a Pre-qualifying single paper examination of 100 marks which shall have **100% Objective type Multiple Choice Question only**.

The distribution of marks will be as under-

100% Objective type Multiple choice Question only	Technical Subject	40 marks
	General Knowledge including optional Questions on Official Language Policy	30 marks
	Establishment & Financial Rules	30 marks

The duration of the Pre-Qualifying Examination is 2 hours.

QUALIFYING MARKS-

The employees scoring 75% marks and above in the Pre-qualifying examination shall be eligible for appearing in the main examination and for this, number of employees shall be restricted to 5 times the number of respective vacancies in order of merit.

There shall be negative marking for incorrect answers. One- third of the marks allotted for each question will be deducted for every wrong answer.

6. MAIN EXAMINATION-

The Pre-qualifying examination will be followed by one descriptive type paper on professional subject comprising of 100 marks and the qualifying marks in the written examination will be 60 %.

The written test will be in the following pattern:

PAPERS	MAX MARKS	MINIMUM QUALIFYING MARKS
Main Examination(Descriptive type paper on Professional Subject)	100	60%

The duration of the Main Examination is 3 hours.

7. SYLLABUS FOR PROFESSIONAL PAPER OF LDCEs-

Copy of the revised syllabus for the written examination issued by Railway Board under letter No. E(GP)2008/2/7 Dt. 27.01.2014 as RBE No. 14/2014 is enclosed as 'ANNEXURE-B'. The topics on professional subjects divided in two segments as Paper I and Paper-II shall be amalgamated from which topics for the Pre-qualifying and main Examinations will be chosen.

In terms of Para 204.3 IREM Vol I , question for 10% of total marks will be set apart for Official Language Policy and Official Language Rules . While the employees are encouraged to attempt questions on official language policy and official language rules, the questions on official language is not compulsory.

8. RECORD OF SERVICE AND VIVA-VOCE

		Max Marks	Qualifying Marks
i	Viva-Voce	25	30 (including at least 15 marks under record of service)
ii	Record of Service	25	

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9. There will be no grading of successful candidates as 'outstanding', 'very good etc.

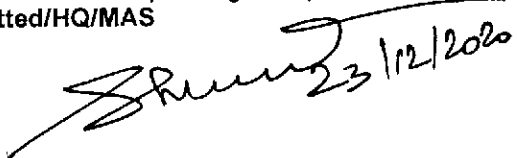
The Pre-Promotional training would be suitably organized before the date of written test. In case any eligible reserved employees are not willing or fail to attend the Pre-Promotional training on the specified dates in spite of notification, they will have to appear for the written test without such pre-promotional training imparted.

V) MEDICAL EXAMINATION

Those who qualify in the written examination will be subjected to Medical Examination as per Para 530 (a) of Indian Railway Medical Manual before viva-voce test and those who qualified in the written examination and declared medically FIT for Group 'B' service will only be called for viva-voce test in terms of Railway Board's letter No. E(GP) 80/2/8 dated 31.10.1991. After the viva-voce test, the names will be arranged in the order of merit on the basis of aggregate marks obtained by each employee.

VI) Processing of application:-

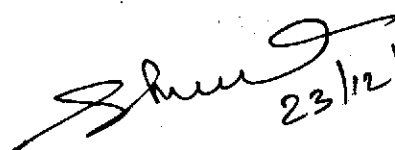
1. Those staff who are eligible in terms of the conditions stipulated above should submit their applications in the prescribed proforma (**ANNEXURE - A**) to the Cadre Controlling Personnel Officers. In those units not provided with Personnel Officers, the applications should be submitted to the Head of the Unit.
2. The last date for submission of applications to the Divisional Personnel Officer/Head of the Unit is 13.01.2021.
3. It may please be noted that controlling Officers/Heads of the units have no discretion to entertain any application beyond the last date. The applications of the employees who have completed five years of regular service in Level -6 (VI PC) or in scale Rs. 5000 – 8000 in V PC or GP Rs.4200 in VI PC or five years regular service including service in higher grade as on 19.03.2020 only be forwarded after verifying other relevant particulars and **NO INELIGIBLE APPLICATION** should be forwarded. The authorities will check the correctness of all the particulars of the applications with the Service Register and other relevant records and certify the correctness of each item of the application. Without such certification, applications received will be summarily rejected and the responsibility will be fixed for incorrect or incomplete certification. All the authorities will receive the applications and give acknowledgement with date up to 13.01.2021 and send all the applications bunched together in one covering letter addressed to **SPO/Gazetted/HQ/MAS** by 27.01.2021 indicating therein the total number of applications forwarded. The applications rejected may be intimated to the individuals giving reasons thereof (i.e) the relevant eligibility criteria not being fulfilled
4. Staff working in Headquarters Office should submit their applications to their respective Cadre Controlling Personnel Officers, viz. Dy.CPOs/SPOs by 13.01.2021. The Cadre Controlling Officers should verify the particulars and forward the application to **SPO/Gazetted/HQ/MAS** by 27.01.2021 with necessary certification. **NO PIECEMEAL FORWARDING OF APPLICATIONS SHOULD BE RESORTED TO.**
5. Those who are on deputation/leave/sick/serving in other Railways/RDSO/Railway Board/RITES/IRCON/KRCL/RVNL, etc. should also be notified of the selection for promotion to Group 'B' service through LDCE to enable them to submit their applications through proper channel in time and staff also should contact their Headquarters Office at frequent intervals to find out the date of examination.
6. If volunteers are undergoing penalty of reduction to lower grade or under suspension or any departmental proceedings have been initiated for major penalty or any RPUP cases are pending, the particulars of such employees should be advised with details to **Dy.CPO/Gazetted/HQ/MAS**

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7. It is observed from the applications received from volunteers in the past that the date of entry into Grade Rs.5000-8000 in (VPC)/GP Rs 4200 in (VIPC)/Level 6 in (VIIPC) and above on regular basis and also the Running Staff date of entry in GP Rs 2400 with design has not been indicated in several cases with the result it became difficult to decide their eligibility or otherwise at this end. This aspect may specifically be scrutinised before forwarding the applications to this office.
8. When an employee is working against an ex-cadre post, details of his parent cadre and post in regular cadre with the grade and date of entry as a regular measure should be furnished. This may also be brought to the notice of all concerned.
9. Applications received beyond the target date should not be entertained and the same should be disposed of at the Division/Extra-Divisional level, rejecting them on account of late receipt.
11. In terms of Board's letter No. 79-E(SCT) 15/98 dated 18/12/1981 and No. 87-E (SCT)1/31/5 dated 02/12/1987, community certificate of Reserved Community employees should be verified, particularly at the stage when the candidates are to be considered for promotion to the next higher grade. It is therefore requested that genuineness of the Community Certificate of the reserved community employees may be verified and certified by the cadre controlling Personnel Officer and the attested copies of **Community Certificate** forwarded to this office along with their applications. In case of investigation of false community certificate, if any, from the volunteers, the details of such cases may also be advised to this office.
12. In the event of any employee belonging to reserved community being promoted against unreserved vacancy, his/her promotion will be subject to the outcome of main SLP (C) 4831 of 2012 and Contempt Petition (C) No.314 of 2016 filed in the same SLP pending before the Hon'ble Apex Court.

VII) The Schedule for the above selection (30%) is as under:-

Particulars	Date
Issue of notification	23.12.2020
Last date for submission of application to the respective units	13.01.2021
Forwarding of applications to Headquarters by respective units	27.01.2021
Scrutiny and preparation of Eligible list	28.01.2021- 12.02.2021
Alert notice for PPT	15.02.2021
Conduct of PPT	17.02.2021- 10.03.2021
Date of PRE-QUALIFYING EXAMINATION	13.03.2021
Publication of results of PRE-QUALIFYING EXAMINATION	19.03.2021
Alert Notice for MAIN EXAMINATION	22.03.2021
Date of MAIN EXAMINATION	27.03.2021


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VIII) Other Instructions:-

- 1) **There will be no supplementary written examination.**
- 2) Wide publicity should be given to all staff of your Unit/Division. It should also be ensured that this notification, calling for volunteers for the above selection is notified to all concerned within three days so as the staff under your control who are eligible and willing have immediately to submit their application on or before **13.01.2021**. Applications received beyond the last date of submission of application should not be entertained and the same should be disposed off at the Divisional /Unit level, rejecting them on account of late receipt. Applications of eligible applicants which are complete in all aspects duly certified by personnel officer may be sent in one bunch in the format (**Annexure C**) with a covering letter to this office strictly before the last date.

3)The employees, who have responded to this notification, are also equally responsible to attend the written examination on the scheduled date and time. They shall get in touch with their Head Quarters or this office, at frequent intervals for inquiries, if any. They may also contact the following Rly. Nos.

SPO/Gaz : 22533

Ch.os/Gaz : 22710

4. They can also visit Railnet web site address: <http://10.5.2.32/newhome/cpogaz/pb/index.aspx> at frequent interval to know their status, date and time for written Examination etc.

5. Please note that the last date viz. **13.01.2021** is sacrosanct.

Please acknowledge receipt.


(S.JANAKIRAMAN) 23.12.2020
SPO/Gazetted/HQ/MAS
for General Manager

Encl:-Annexure - A, B & C

Copy to: PCPO CPO/IR Dy.CPO/M&E & T,
SPO/RP, APO/M&E & T, APO/GI.
Ch OS/NGS/Electrical, Ch OS/PCEE/O/MAS
Dy. CPLO/HQrs- It is requested that the above notification
may be published in the Gazette.
GS/SROA, SRPOA, SRMU

APPLICATION FOR THE POST OF ADEE/AXEE NOTIFIED ON 23.12.2020 (LDCE-30%)

(Candidates to fill up all columns in their own Handwriting)

1. Name :

2. Present Designation/Station :

With Date of entry/Desgn & level/Grade

3. Department:

4. PF.No

5. Date of Birth:

6. Educational Qualification :

7. Date of Appt. in Railways
(Desgn and Level/ Grade)DESIGNLevelGRADE8. Date of joining in Apprenticeship (If applicable):
(Level - 6)9. Date of Regular promotion to level -6
with Designation.Running Staff, Date of entry in GP Rs 2400(Desgn)

10. Whether belongs to UR/SC/ST

11. Option for Pre-Promotional Training (SC/ST Only):

YES / NO (Put tick mark)

12. Option for question paper in Hindi

YES / NO (Put tick mark)

13. For Running Staff only.

a) Please tick option whichever is applicable:

☐ Trained in Electric Traction only and willing for ADEE/AXEE selection in Electrical Department.☐ Trained in both Electric & Mechanical and willing for ADEE/AXEE selection in Electrical Department

b) Whether opted for ADME/AWM Exams earlier : YES / NO (If Yes, Year of Exam :)

I hereby declare that I am aware of the condition that being trained in both mechanical and electrical traction, I have the option to apply for ADEE/AXEE and ADME/AWM. **Hence my option exercised for ADEE/AXEE above is final and irrevocable at a later date.**

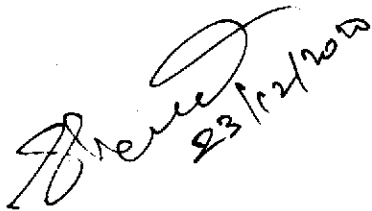
Signature with date

Mob. No :

To be filled by Personnel Branch Cadre Officer

Forwarded to CPO/MAS

The particulars furnished by the above employee have been Verified and found correct.



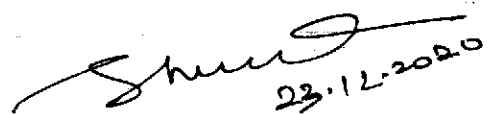
Signature

Name/Desgn

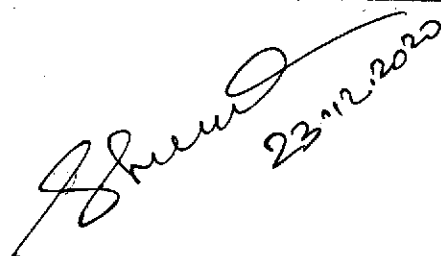
Syllabus for professional papers (Revised) for 30% LDCE for promotion to Group B post of AEE in Electrical Engineering Department

1.0	General-
1.1	Net work analysis, Star/Delta, transformation Symmetrical component, transients, Basics of Control Systems.
1.2	Analog and Digital Electronics and Circuits: Semiconductor device physics, PN junctions and transistors, circuit models and parameters, FET, Zener, tunnel, Schottky, photo diodes and their applications, rectifier circuits, voltage regulators and multipliers, switching behaviour of diodes and transistors. Small signal amplifiers, biasing circuits, frequency response and improvement, multi-stage amplifiers and feed-back amplifiers, D.C. amplifiers, Oscillators. Large signal amplifiers, coupling methods, push pull amplifiers, operational amplifiers and wave shaping circuits. Multi-vibrators and flip-flops and their applications. Digital logic gate families, universal gate combinational circuits for arithmetic and logic operation, sequential logic circuits. Counters, registers, RAM and RGMs.
1.3	Micro-processors: Micro-processor architecture Instruction set and simple assembly language programming. Interfacing for memory and I/O. Applications of Micro-processors in power system.

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1.4	Power Electronics: Power semi-conductor devices. Thyristor. Power transistor (IGBT), GTOs, and MOSFETs. Characteristics and operation. AC to DC Converters; 1-phase and 3-phase DC to DC Converters; AC regulators. Thyristor controlled reactors, switched capacitor networks. Inverters; Single-phase and 3-phase. Pulse width modulation. Sinusoidal modulation with uniform sampling. Switched mode power supplies.
1.5	Communication Systems: Types of modulation; AM, FM and PM. Demodulators. Noise and bandwidth considerations. Digital communication systems. Pulse code modulation and demodulation. Elements of sound and vision broadcasting. Carrier communication. Frequency division and time division multiplexing, Telemetry system in power engineering. Fibre optic cable communication system.
1.6	Indian Elect. Acts & Rules: Application of these to Railway working, checks to be carried out before commissioning Elect. Assets, functions and duties of Electrical Inspectors (EIG), Electricity Act 2003. Energy Conservation Act 2007, ECB Code, role of Lift Inspector, Lift & Escalators Rules.
2.0	Electrical Engineering Materials-
	Band Theory, Conductors, Semiconductors and Insulators, Superconductivity. Insulators for electrical and electronic applications. Magnetic materials. Ferro and ferri magnetism. Ceramics: Properties and applications. Hall effect and its applications. Special semi-conductors. Insulating material classification /Thermal affect, Solar PV modules
3.0	Theory and performance of Electrical Machines & equipment-
3.1	Basic concepts in rotating machines. EMF, torque, basic machine types. Construction and operation, leakage, losses and efficiency.
3.2	Direct current machines : Generation of EMF, work, power, Torque equation, armature winding, armature, reaction, theory of commutation, Inter-poles & compensating windings, characteristics


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	of shunts, series and compound generators, parallel running and load sharing of generators. Construction, Excitation methods. Circuit models characteristics and performance analysis. Generators and motors. Starting and speed control. Testing. Losses and efficiency.
3.3	Synchronous Machines. Construction. Circuit model. Operating characteristics and performance analysis. Synchronous reactance. Efficiency. Voltage regulation. Salient-pole machine. Parallel operation. Hunting. Short circuit transients.
3.4	Induction Machines. Construction. Principle of operation. Rotating fields, Characteristics and performance analysis. Determination of circuit model. Circle diagram, Starting and speed control, Fractional KW motors. Single-phase synchronous and induction motors, 3 phase Asynchronous motors and induction motors for traction application.
3.5	Transformers: Construction and testing. Equivalent circuits. Losses and efficiency. Regulation. Auto-transformer. 3-phase transformer. Parallel operation. Methods of cooling, Tap changing, parallel operation, polarity and phase sequence testing, protection Instruments, PTs & CTs, etc. Scott connection transformer.
4.0	Generation, Transmission & Utilisation-
4.1	Sources of energy, heat value of fuel, steam power station, Hydro Elect. Station, Nuclear power station. Pumped storage plants. Economics and operating factors.
4.2	Power transmission lines. Modeling and performance characteristics. Voltage control. Load flow studies. Optimal power system operation. Load frequency control. Symmetrical short circuit analysis. Z-Bus formulation. Symmetrical Components. Per Unit representation. Fault analysis. Transient and steady-state stability of power systems. Equal area criterion. Power system Transients. Power System Protection Circuit breakers. Relays. HVDC transmission.
4.3	Illumination standards of light, polar curve, Reflection and absorption, lighting calculations including design & economical layout of service building, workshop & yards. Various sources of light - fluorescent tubes etc.

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4.4	Electric traction : Advantages & disadvantages, speed time curve, traction motor, starting & speed control of DC series motors, power consumptions, Regenerative braking, advantages and disadvantage of AC traction over DC traction, Tractive effort, Braking Effort.
4.5	Group & individual drive. Choice of drive & motors for various usages.
5.0	Measurements & instrumentation-
5.1	Units and Standards. Error analysis Measurement of resistance (high & low), potentiometer, wheat stone & Kelvin bridge, meggers for insulation resistance & earth resistance.
5.2	Voltmeters, ammeter, power factor meter, single phase watt meter, measurements of three phase power recording instruments, maximum demand meter. Watt hour meter, shunt, CT, PT.
5.3	Check meter
5.4	Transducers and their applications to the measurement of non-electrical quantities like temperature, pressure, flow-rate displacement, acceleration, noise level, etc. Data acquisition systems. A/D and D/A converters.
6.0	Mechanical Engineering Refrigeration etc.-
6.1	Various types of drives, belt, tooth gearing, rope and chain drive and Helical gears. Different types of bearings, ball, roller etc.
6.2	Heat pump cycle, vapour compression, estimation of cooling and heating levels and plant capacities, calculation of psychometric charts, condensers cooling and dehumidification, refrigerant and their properties.
7.0	Logical Reasoning-
	The test is given to the candidates to judge their power of reasoning spread in verbal and non verbal areas. The candidates should be able to think logically so that they perceive the data accurately, understand the relationships correctly, figure out the missing number of words, and to apply rules to new and different contexts. These

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	indicators are measured through performance on such tasks as detecting missing links, following directions, classifying words, establishing sequences, and completing analogies.
7.1	Chart logic A chart or a table is given that is partially filled in and asked to complete it in accordance with the information given either in the chart/table or in the question.
7.2	Pattern perception: Here a certain pattern is given and generally a quarter is left blank. The candidate is required to identify the correct quarter from the given four alternatives.
7.3	Figure matrix: In this more than one set of figures is given in the form of a matrix all of them following the same rule. The candidate is required to follow the rule and identify the missing figure.
7.4	Rule detection: Here a particular rule is given and it is required to select from the given sets of figures a set of figures which obeys the rule and forms the correct series.

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1.0	General Services-
1.1	General power supply arrangements, air conditioning etc.
1.2	Power Supply : HT & LT sources, power supply network, substation layout, overhead & under ground distribution, maintenance & operation of transformers, switch gears, protective devices & distribution lines.
1.3	Construction, erection & commissioning of new sub station distribution lines, line calculations etc.
1.4	House wiring metering & safety precautions.
1.5	Tariff & agreements, Relative merits of obtaining HT & LT supply, steps to reduce maximum demand, measurement of power, power factor, measuring demand etc.
1.6	Water supply & requirement of water planning of water supply system, sources of water pipe line frictional & other losses, discharge calculations.
1.7	Reciprocating centrifugal & turbine pumps, relative merit, choice of VS & HS pumps, characteristic curve of pumps, efficiency Drives, Elect. Connections & protections. Cavitations & priming of pumps, measurement of output with V-Notch & nozzle, necessity of multi stage pumping, storage capacity and purification of water.
1.8	Preventive maintenance, special failure of pumps & motors,

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	periodical overhaul.
1.9	Air-conditions and Refrigeration :
	Central air-conditioning plant & package type system, refrigeration cycle, air changes, planning for capacity and drives for refrigeration plants, refrigerants and ducting.
1.10	Specification, design & testing of water coolers, central as well as package plants. Requirements of water coolers, window coolers & refrigerators.
1.11	Standby arrangement: DG sets, both petrol & diesel as also diesel pumps for water supply arrangements. Operation maintenance and overhauling.
1.12	Illumination, yard lighting, street lighting & town supply net work. Drives for workshop machinery.
1.13	Earthing & Bonding.
1.14	Commissioning & maintenance aspect of conventional & maintenance free earthing arrangement for general service application.
1.15	Maintenance of various equipment of sub-station, Energy Management, Important Instructions issued by Railway Board and RDSO.
1.16	Energy Consumption, Renewable Energy, Solar, Wind and biomass
2.0	Traction Distribution-
2.1	Systems of electrification in use and advantage and disadvantages of the different systems with emphasis on 2x25 KV system.
2.2	Feasibility studies and justifications for track electrifications, preliminary planning and design, procedure followed in taking up electrification scheme, working drawing for execution of OHE wiring plans and OHE layout plans.
2.3	Planning of layout of overhead equipments, Techno economic survey

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	for electrification of new lines, foot by foot survey, prepegging plans, precautions to be taken while wiring new lines, foundation & their types & use of wiring trains, final checking safety checks & certification, energizing of new lines, principles of preparation of lay out plans, provision of return conductors.
2.4	Overhead equipments – Types of overhead equipments, regulated and unregulated systems, stitches OHE, speed potential of various types of OHE, Centenary, contact wire, Dropper & Jumpers. Overlaps, clearances, Mast & portals, schedules of Dimension etc.
2.5	Maintenance problems with OHE, Foot Patrolling, current collection, use of Tower wagons, ladders & ladder trolleys, seasonal & cycle checks, maintenance Schedule, Insulator cleaning, straightening of out of plumb masts, earthing and bonds, return conductors, Preventive maintenance Tools, Types of Blocks & Procedure
2.6	Breakdowns, TRD works during breakdown and accidents, restoration procedure both temporary and permanent.
2.7	Overhaul schedule & anti-theft measures.
2.8	Organization & working of maintenance depots, repair workshops, training of staff safety measurements and precautions.
2.9	Power supply installation: Power supply arrangements, traction sub stations, feeding stations, SSP & SPs, 132 KV transmission lines, Railway owned sub stations, transformer maintenance, circuit breakers, current and potential transformers, protective relays, auxiliary transformers, interrupters and isolators.
2.10	Liaison with power supply authorities, monthly meter reading, control over maximum demand, emergency power supply arrangements. Automated Meter Reading.
2.11	Maintenance of switching stations.
2.12	Remote control system, remote control equipment for AC substations and its working. Operation and maintenance of remote control, Specialized equipments for remote control work.
2.13	Remote control centre, traction power control organization, permit to

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	work, emergency arrangements, coordination with operating and other departments. Liaison with supply authorities, emergency phones, safety precautions for electrified section.
2.14	Miscellaneous : Traction, stores and their accountal, regulation for electrical crossing of railway tracks.
2.15	Important instructions issued by Railway Board, RDSO's SMI./MS.TCs and related Investigation Reports.
3.0	Train lighting and air conditioned coaches
3.1	Designs, construction, principles of working schematic circuits diagrams of train lighting equipments used in train lighting system.
3.2	Coach wiring, under frame wiring, schedule of rewiring, couplers, lamp resistance, junction boxes and fuses, Generation to non-generation ratio, lights, fans and water raising apparatus.
3.3	Self generating coaches, End on-Generation, Head on Generation, , power cars, electrical and mechanical components, layout, operation and maintenance procedures for slip coaches.
3.4	Train lighting batteries their maintenance, defects analysis of causes of failures and remedial measures. Simplified system of train lighting use of alternators, anti theft measures.
3.5	Fires in trains, preventive measures and precautions.
3.6	Periodic over haul and heavy repairs to train lighting equipment
3.7	Broad outlines of types of equipments used in 110 V and 415 Volt air conditioned coaches, scheme of refrigerated vans. Drives and their problems, maintenance and operational problems Refrigeration, compressors their types in service and their problems, gear boxes, their maintenance and alignment.
3.8	Maintenance schedule for AC coaches, partial AC coaches, AC I, II/ III coaches, Sleeper coaches. Running repairs.
3.9	Coordination with Mechanical, Operating and Security Department

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3.10	Important instructions issued by Railway Board, RDSO's SMIs, TCs and related investigations reports
4.0	Electric Locos-
4.1	Description of locomotives in service, principles of operation and characteristics of different types of locos used in electric traction on the Indian Railways.
4.2	Power, Auxiliary and control circuits: Their equipment, functioning, maintenance /overhauling schedules.
4.3	Various types of bogies and bogie suspension and their components, power transmission from traction motor to axles, traction motor mounting arrangement i.e. jacqueman drive, Quill drive, WN coupler: their equipment, functioning, maintenance/overhauling schedules.
4.4	Air, vacuum and Dual Break System, Air compressors, regenerative and rheostatic breaking, their equipment, functioning, maintenance/overhauling schedules.
4.5	Function of electric loco sheds and electric loco workshops.
4.6	Schedule inspection of locos i.e. IA, IB, IC, AOH, IOH and POH.
4.7	Records and registers maintained in loco shed, planning and progress organization, statistical data, rolling stock organization in sheds and shops, fire prevention, safety checks and history cards.
4.8	Important instructions issued by Railway Board, RDSO's SMU/MS/TCs and related investigation reports, AC Traction Manual.
5.0	EMU/MEMU/Metros
5.1	Utility of FMU trains for urban and suburban services vis-à-vis locomotives, various types of EMUs stock – AC, DC and AC-DC, their salient features, rake formation.
5.2	Power circuits, auxiliary, control circuit, break systems, bogies and other mechanical components, their equipment, functioning,

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	maintenance/overhauling schedules.
5.3	Inspection schedules of EMUs/MEMU/Metros, troubleshooting sequence.
5.4	Safety precautions and fire prevention checks.
5.5	Maintenance and overhaul organization and liaison with other department.
6.0	Electric loco and EMU operation-
6.1	Operation of electric locos with single unit and multiple unit and with rheostatic and regenerative breaking.
6.2	Safety features to be followed in the operation of electric locos and EMUs
6.3	Failures of electric locos and EMUs, their cause, investigation and remedial measures for avoiding failures.
6.4	Inter-relation between electric mechanical and operating department in functioning of electric locos and EMUs.
6.5	Function of traction loco control organization.
6.6	Preparation of engine links and driver links - power plan.
6.7	Compilation of operating statics for electric locos and EMUs operation.
6.8	Outstation organization for maintenance of electric loco and EMU.
6.9	Working rules for preparation/operation of elect. Rolling stock.
6.10	Recruitment and training of running staff - conversion training etc.
6.11	Accidents and re-railing technique of locos and EMUs.
7.0	Stores Matters-
7.1	Procedure relating to procurement of stock items, non-stock items.

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	distribution and accountal of stores.
7.2	Receipt and custody of stores
7.3	Sale of surplus stores.
7.4	Inventory control.
7.5	Schedule of Powers
8.0	Engineering Matters-
8.1	Estimates
8.2	Execution of Work
8.3	Contracts for work
8.4	Procedure for traffic and engineering surveys
9.	Disaster Management – Role of Electrical Officer.:

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Establishment & Financial Rules

1. Knowledge of stores procedure of stocking, indenting and accepting at the receiving end. Imprest, Charged off stores, Return of stores, Stocking limit.
2. Accountable of Fuels and Lubricants.
3. Principles of stock verification and inventory control.
4. General principles of Budgeting and control of expenditure.
5. General Knowledge of in relation to:
 - I. Payment of Wages Act 1936
 - II. Minimum wages Act
 - III. Employees Compensation Act 1923
 - IV. Factories Act 1948
6. Discipline and Appeal Rules 1968
7. The Railway Servants(Hours of Work and Period of Rest) Rules – 2005, Adjudicator's award – Duty Rosters
8. Leave Rules
9. Recruitment of staff to various grades
10. Staff cadres and channel of promotions
11. Rules regarding passes, Travelling Concessions and Travelling allowances
12. Casual Labour
13. Provident fund Rules-Pension Rules and Gratuity
14. Labour Organization-Trade Union Act-Permanent Negotiation Machinery-Labour relations and Personal Management-Industrial Dispute Act-Indian Trade Union Act
15. Railway Services Conduct Rules 1966

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ANNEXURE C

Ref- PCPO L.NO P(G)532/VII/LDCE/2020-22 dated 23.12.2020

Selection for the post of ADEE/AXEE through LDCE 30%- Electrical Engineering Department

S N o	Name Desgn	Dept Elec/ Mech	Name Desgn	Comm	DOB	DOA	Date of Entry to 2400/ Desgn	Date of Entry to 4200	Date of entry to 4600	Trained in Dual traction/ Option	PPT Yes/No	Hindi Questi- on paper Option Yes/No

Sumit
23/12/2020