South Central Railway

Office of the
Divl.Railway Manager,
Personnel Branch, 4th Floor,
Sanchalan Bhavan, Secunderabad.

No.SCR/P-SC/210(a)/EL(TRS)/JE/LDCE

Date: 18.11.2019

Sr.DEE/ELS/KZJ
All SSE/SE's of Electrical(TRS) Organization

NOTIFICATION

Sub: Formation of panel for filling up the post of Junior Engineer/ELS/KZJ in Level-6,against 25% LDCE quota in Electrical(TRS) Organization of Secunderabad Division – Reg

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1. It is proposed to conduct a selection for formation of panel for promotion to the post of JE/ELS/KZJ in Level-6 against 25% Limited Departmental Competitive Exam (LDCE) quota in Electrical (TRS) Organization of SC Division. The details of vacancies are as under:

Category	UR	SC	ST	Total
JE	03	NIL	NIL	03

2. **Eligibility and Service conditions of staff:**

2.1 All Technicians from Tech.-III and above with minimum three years of service in skilled grades in ELS/KZJ of Electrical(TRS) Organization including TS/KZJ of SC division having the following qualification shall apply.
i). ITI/Act Apprenticeship pass in the trade relevant to the post of Junior Engineer/TRS (Railway Board's Lr.No.E(NG)I/99/PM7/17, dated 25.08.2003, (S.C.No.172/2003) or 10+2 in Science stream.
ii) Degree or Diploma in the relevant branch of engineering required for the post of Junior Engineer/TRS (Railway Board's Lr.No.E(NG)I/99/PM7/17, dated 28.07.2003, (S.C.No.157/2003).

2.2 The volunteering staff should be below the age of 47 years in the case of General candidates and the upper age limit for SC/ST employees would be 52 years (S.C.No.90/2010 & 92/2011)

2.3 In terms of Railway Board's Lr.No.E(NG)I/2005/PM1/52, dated 22.08.2006, (S.C.No.131/2006), the volunteering staff should fulfill the service conditions of age and educational qualifications and other service conditions as on the date of notification. i.e. as on ***18 .11.2019***.

Note: In respect of employees who have reported/joined on this division on Inter Railway Request Transfer/Inter Divisional Request Transfer on bottom seniority the service rendered in the skilled category of old unit will also count for the purpose of qualifying service for promotion in the new seniority unit provided.

(i) He/She is otherwise eligible to be considered for the selection to Group 'C' post as per extant rules; and

(ii) The category in which he/she was working in the old unit is an eligible category for the selection/post in the new unit also. [Authority CPO/SC's S.C.No.41/2006 & 117/2006].

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3. **MODE OF SELECTION AND QUALIFIYING MARKS**
(Railway Board's Lr.No.E (NG) I/2000/PM1/41, dated 20-08-2003, S.C.No.144/2003)

3.1 Professional Ability: - The professional ability of the employees in the field of selection will be adjudged through written test. The employees must secure 60% of marks in professional ability.

3.2 The post of JE/TRS being a safety one, there will be no relaxation in qualifying marks, for candidates belonging to SC/ST community. They have to obtain minimum of 60% in written test & 60% in aggregate.

Factors / Headings	Max. Marks	Qualifying Marks
Professional ability	50	30
Record of Service	30	-
Total	80	48

3.3 Distribution of marks under head of Record of Service.

15 marks	On the basis of grading of APARs/Working Report of last 3 years
10 marks	On the basis of entries of Awards/Punishments in the SR
5 marks	On the basis of entries in SR for Academic/Tech. Qualifications

3.4 The final panel should be drawn up in the order of merit based on aggregate marks of 'Professional ability' and 'Record of Service'. However, the employees must secure a minimum of 60% marks in 'Professional ability' and 60% marks in aggregate, for being placed on the panel. There will be no classification of candidates as 'Outstanding'. The final panel will also be subject to their being fit in medical classification of B-1only .

4. **Syllabus:**

4.1 Syllabus for the written test is enclosed as Annexure 'A'. Option is available for writing in Hindi also.

4.2 Question Bank is available on railway website – www.scrindianrailway.gov.in.

4.3 There shall be questions in official language policy & Rules upto 10% of marks. However, it is not mandatory to attend the same.

5. **Procedure for written examination:**

5.1 In terms of Railway Board's Lr.No.E(NG)I/2018/PM1/4,dated 14.12.2018(RBE No.196/2018), CPO/SC's S.C.No.212/2018, the written examination consists of 100% objective and all the questions will be of multiple choice only.

5.2 There shall be negative marking of incorrect answers. 1/3rd of marks allotted for each question will be deducted for wrong answers.

5.3 Cutting, over writing, erasing or alteration of any type in the answer will not be accepted. Zero marks will be given for answer having correction or overwriting.

5.4 The written examination will be either in the mode of computer based test or pen and paper. If the written examination is not the computer based test it may be conducted on OMR sheets.

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6. **Question Bank:**

6.1 In terms of Railway Board's Lr.No.E (NG) I-2006/PM1/34, dated 06.11.2006,CPO/SC's S.C.No.196/2006, updated Question banks covering the complete syllabus will be provided to the staff concerned or the same can be downloaded from the official website of **www.scr.inidanrailways.gov.in**.

6.2 It is further advised that there will not be any mandatory limit of questions from the question banks.

6.3 The controlling officer/supervisor has to ensure that the question bank is circulated to all the eligible staff and holding of selections will not be postponed/delayed due to non-circulation of question banks.

6.4 Question bank is only indicative in nature but not exhaustive. The examinees are advised to update their knowledge with latest Rules/circulars/policies.

6.5 The question banks so prepared should be updated regularly in accordance with the changing technology and job requirements.

7. **Date and Venue of Examination:**

7.1 **Important dates:**

Last date of submission of applications	10.12.2019
Date of publication of eligibility	24.12.2019
Tentative Written Examination date	22.01.2020
Note: There shall be no Supplementary Exam.	

7.2 The venue and time of examination will be intimated separately. However, it is to be advised to the volunteering staff that there will be no supplementary examination to the absentees.

7.3 The candidates may keep an update time to time from this Railway's official website i.e. www.scr.indianrailways.gov.in.

8. **Notifying to the staff:**

8.1 The controlling officer/supervisor shall give wide publicity of the notification to all the eligible staff of Electrical(TRS) organization of SC division and notification should be displayed at conspicuous place. It is the responsibility of controlling officer/supervisor to circulate the notification among the staff concerned.

8.2 In terms of Railway Board's Lr.No.E(NG)I-72/PM1/166, dated 26.06.1972, CPO/SC's S.C.No.213/72, the Senior Subordinate/Supervisor concerned has to furnish a certificate that "the eligible candidates were duly notified of the holding of the test and asked to submit their applications duly giving their willingness" and forward the same to Sr.DPO/O/SC.It should be the personal responsibility of the Senior Subordinate/Supervisor to complete the formality in this respect. It is further advised that any other communication received in respect of the selection should invariably be intimated to all the eligible employees. In case of non receipt of any communication the same may be obtained from the Personnel department or from the Controlling Officer. Any laxity in this regard will be viewed seriously.

9. **How to apply:**

9.1 The employees should submit the application in the prescribed format through proper channel enclosed as Annexure ' B '

9.2 The application should be on good quality of A-4 size using one side only.

9.3 They should fill up the application form in their own writing with blue or black ball point pen only.

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9.4 All relevant columns in the application should be filled completely & strike out the inapplicable columns and forwarded duly signed by the controlling supervisor/officer wherever required or otherwise same will not be considered.

9.5 Employee should paste the recent Photograph on the application which shall be attested by the concerned supervisor.

10. Last date for submission of Applications :

The willing and eligible volunteers has to submit their applications in prescribed proforma to their controlling officers on or before **10.12.2019** who will forward the applications in one bunch to the controlling officer on or before **13.12.2019.**

The vacancies assessed for the above selection are unreserved. Hence no prepromotional training will be imparted for reserved community employees in terms Rly. Boards letter No.83-E-(SCT)42/1 Dt 14.04.83.

Encl:

1. Syllabus (Annexure- 'A')
2. Application Proforma (Annexure- 'B')

(B.ARUN KUMAR)
DPO-I/SC
for Sr.Div. Personnel Officer/SC

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ANNEXURE-B

Application for selection to the post of Junior Engineer in Level-06 against 25% LDCE quota (Intermediate Apprentices Quota) in Electrical (TRS) department in ELS/ KZJ of Secunderabad Division.

(w.r.t this office notification issued under letter No.SCR/P-SC/210(a)/EL(TRS)/JE/LDCE Dated: 18 .11.2019)

1. Name of the Employee :

2.PF Account No. :

3.Designation / Station :

4.Date of Birth(In Christian Era) :

Affix recent photograph attested by controlling supervisor

5.Age as on (18 .11.2019) :

Year	Month	Day

6.Community[UR/OBC/SC/ST] :
(Write the relevant community in Bold letters in the box)
(Certificate to be enclosed)

7.Date of Initial Appointment/Station/Dept./Divn./Rly:

	Date of Appt	Station	Dept	Division	Railway
As Technician Gr.III					
As Technician Gr.II					
As Technician Gr.I					
As Sr.Technician					

8.Total Length of service in Technician Gr.III and above: _____ Years_____ Months_____ Days.

9.Educational Qualifications :

Copies of Certificates to be Enclosed

10. Awards conferred during the last three years;

Awards conferred during the last three years.	2016 – 2017	2017 - 2018	2018-2019
Divisional Level(DRM Level)			
Headquarters level/PHOD/HOD			
GM/Railway Board's level			

11.Penalties imposed during last three years:

Penalties imposed during last three years.	2016 – 2017	2017 - 2018	2018-2019
Minor			
Major			

12. Any other relevant information:

13.Contact Number:
(Office)_____(Mobile)_____

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Declaration: I hereby declare that the particulars furnished above are true, complete and correct to the best of my knowledge and belief. I understand that, if at any stage it is found that the information furnished is false, incorrect or I do not satisfy/ fulfil the eligibility criteria, my candidature/ appointment on promotion is liable to be cancelled besides liable for disciplinary action as per rules. I have read contents of the notification and agree to abide by the rules, regulations and procedure prescribed for promotion to the post of Junior Engineer.

Date:
Station:

Signature of the Employee
Name:
Designation:

(For use of the Controlling Supervisor of the employees)

Letter No. Date:

It is certified that the particulars furnished by the employee are verified with the records available in this office and found to be correct. He fulfills the eligibility criteria as stipulated in the Notification.
The application is forwarded to Sr.DME/Dsl./KZJ for further necessary action please.

Date:
Station:
Seal:

Signature of the Controlling Supervisor
Name of the Supervisor
Designation

(For use of the Controlling Officer of the employees)

Letter No. Date:

Forwarded to Sr.DPO/SC for further necessary action

1.Verified and counter Signed.
2.Certified that there are no DAR/SPE/Vig. Cases pending /contemplated against the above employee.

(In case any DAR/SPE/Vig. Cases pending against the above employee the details shall be indicated)

Date:
Station:
Office Seal

Signature of the Controlling Officer
Name :
Designation and stamp

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SOUTH CENTRAL RAILWAY
SECUNDERABAD DIVISION

SYLLABUS FOR PROMOTION AS JUNIOR ENGINEER IN SCALE Rs.9300-34800+4200(GP) Level 6 of 7th CPC Pay Matrix IN TRS ORGANISATION through LDCE Quota.

PART-A

A) **Basics of electricity**

1) Study of Electricity, Ohms Law, Magnetism, Electromagnetic induction, Flemings R.H. Rule, L.H. Rule, Lenz's Law, self inductance, Mutual inductance, Study of AC circuits i.e., RL, RC, RLC Circuits, Series Resonance, Parallel resonance.
2) Study of power factor and the improvement methods demand and economy in installation of electrical energy.
3) Measurements of Resistance, current voltage, power study of various types of meters and equipments used, Megger, diode tester, ammeter, Voltmeter etc., uses of shunts, multipliers.

B) **DC Generators**:

Working principles of D.C. Generators, DC shunt generators, DC series generators and DC compound generators.

C) **DC Motors**:

Study of DC motors and their performance characteristics and Speed characteristics. DC series motor as traction motor and its suitability for traction applications.

D) **Transformers**:

Study of Transformers and concept of Mutual induction. Step down, Step Up transformers, Auto transformers, Current transformers and Potential Transformers. Applications of Transformers. Their role in Electricity.

E) **Induction Motors:**

1) Study of 3phase induction motors and their performance characteristics. Their applications, Torque speed characteristics. VFD drives and their application to Induction Motors.
2) Study of 3 phase induction motors principle, maintenance and overhauling, study of Induction generator, working principles, study of Arno, Aux, machines of A.C. Loco

F) **Transmission and distribution networks**:

Study of transmission lines and distribution lines and under-ground cables, study of erecting the lines determination of conductor size and re-cabling of locomotives.

G) **Importance of Earthing and Earth testing procedure**:

Why earthing is to be done, PIPE earthing, Plate earthing, Maintenance free earthing, Study of Earth testing procedure, insulation test for various equipments and testing of insulators.

H) Basics of Electronics, Diodes, Transistors, Amplifiers, Oscillators, GTOs, IGBTs and their properties.
I) MCBs, Contactors, Fuses, selection of rating of MCBs, contactor, fuses based on current rating.
J) **Electrical Safety and ACTS and Rules**.

1. Electricity act and safe rules and Shock treatment, first aid and use of Fire Extinguishers.

K) **ELECTRICAL TRD EQUIPMENT and Its BASIC Knowledge:**

Electrical OHE and Its arrangement, Traction Substation Layout and its Equipment.

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PART-B

A) Conventional Locomotives (WAG-5/7, WAM-4, WAP-4)

1. DC Series Motors as Traction Motors: Study of Characteristics, Armature Reaction and Commutation Improvements for commutation and suitability of D.C. Series Motor for traction duty. Study of Traction Motor used in A.C. Locomotives WAP4 & WAG5/7 Maintenance, repairs, overhaul of Traction motors of Conventional Locomotives.
2. Study of Conventional Locomotive circuits i.e., Power circuits and control circuits, parameters of A.C. Circuits, Simple calculations, study of power supply arrangements of A.C. traction(Conventional Locomotives).
3. Study of current collection in A.C. Locomotive, study of roof equipments of A.C. Loco.
4. Study of Transformers: principle, overhaul and maintenance of Transformers, Auto-Transformers, conditions for parallel operation of transformer, study of transformer used in A.C. Loco WAP4 & WAG5/7; Maintenance and overhauling tests to be conducted on the transformer, study of tap changer, operation method for voltage control, Testing of transformer.
5. Study of fuse protectors, switches and isolators, construction and working details of circuit breakers of A.C. Conventional Locos (DL).
6. Study of various types of contractors and relays, study of relays and contractors used in the A.C. Loco, Drum Contactors. Function of blow out coil and arc chutes.
7. Study of batteries, commissioning (initial charging) maintenance and reclamation and battery charging procedures.
8. Study rectification methods, filters, study of Silicon rectifier, smoothening reactor in the Loco study of semi-conductor devices, battery charger.
9. Safe working on the locomotive precautions to be taken, Fire preventive measures in the locomotive and study of fire fighting.
10. Study of circuit, analysis of WAP4 & WAG5/7 Locomotive i.e., study of circuits, cabling Index and other drawings.
11. Study of new equipments in Loco such as MPCS, SIV, VCD and WMUCS.
12. Study of DJ control Circuit. Study of various branches and trouble shooting of various branches in DJ control circuit of Locos both with SIV fitted Locos and Arno fitted Locos.
13. Study of WAP-4 & WAG5/7 Bogie, wheel arrangements, suspension arrangements and all mechanical features like elements of Vibration, Oscillation, Damping devices, Elasticity etc.
14. Study of Sander gear and Brake rigging, various types of brake systems (Cubicle brake system, Tri-plate type in Conventional Locos (WAG-7).
15. Study of Pneumatic circuitry of WAP-4 & WAG5/7, Study of various Pneumatic Valves, braking system (E-System).
16. Study of maintenance schedules for various equipment in the Conventional Locomotive, their periodicity for schedules.
17. Different lubricants used in WAG 5/7 & WAP 4 locomotives
18. Maintenance of Records in PPO section.
19. Study of Conventional Locomotive, testing, engine fitness and troubleshooting procedure.
20. RDSO Modification and SMIs implementation and maintenance of various records of Conventional Locomotives.
21. Remaining information related to Conventional locomotives(WAP4, WAG5/7)

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B) **3-Phase Locomotives (WAP-7, WAG-9)**

1. Study of Electronic devices i.e., IGBT and GTOs as control switches in power circuitry and auxiliary circuitry of 3phase Locomotives.
2. 3phase induction Motors as Traction Motors: Study of Characteristics, use of 3phase induction motors for traction duty. Study of Traction Motor used in A.C. Locomotives WAP7 & WAG-9 Maintenance, repairs, overhaul of Traction motors of 3Phase Locomotives (WAG-9, WAP-7).
3. Study of 3Phase Locomotive circuits i.e., Power circuits and control circuits, parameters of A.C. Circuits, Simple calculations, study of power supply arrangements of A.C. traction(3phase Locomotives). IGBT as a control device in POWER circuits and Auxiliary converter circuits. Advantages of IGBT based Locos over GTO based Locos.
4. Study of current collection in 3Phase Locomotives, study of roof equipments of A.C. Loco.
5. Study of 3phase Locomotive Transformers, overhaul and maintenance of Transformers, conditions for parallel operation of transformer, Maintenance and overhauling tests to be conducted on the transformer, testing of transformer.
6. Study of Auxiliary converter circuits (BUR circuits) and components. Auxiliary converters (BURs) power supply and load sharing between during normal condition and during isolation of one BUR. Study of fault messages and troubleshooting based on fault messages.
7. Study of Transformer cooling circuit and function of TFP MPH & their protections.
8. Study of SR coolant circulation and function of SRMPH & their protections.
9. Machine room layout of 3phase locomotives. Locations of various equipment in Machine room.
10. Study of various types of MCBs, contractors and relays, study of relays and contractors used in the 3phase Locomotives.
11. Study of batteries in 3phase locomotives, commissioning (initial charging), maintenance and reclamation and battery charging procedures.
12. Safe working on the 3phase locomotive; precautions to be taken, Fire preventive measures in the locomotive and study of fire fighting.
13. Study of circuits, analysis of faults in WAG-9 Locomotives i.e., study of circuits, cabling Index and other drawings.
14. Protective functions in three phase locomotive(ABB document 3EHP 541526), working of VCD, Failure mode operation, Inching mode operation, Constant speed control, Traction Interlock, SR Interlock and Indication of faults using BPFA & LSFL
15. Study of WAG-9/9H Bogie, wheel arrangements, suspension arrangements and all mechanical features like elements of Vibration, Oscillation, Damping devices, Elasticity i.e., Springs and dampers etc.
16. Study of Sander gear and Brake rigging, various types of brake systems in 3phase Loco. Differences between TBU/PBU type brake rigging and conventional Brake rigging.
17. Different lubricants used in WAP 7/ WAG9 locomotives
18. Study of Pneumatic circuitry of WAG-9, Study of various Pneumatic Valves, braking systems. Study of E70 based and CCB based Brake systems.
19. Study of maintenance schedules for various equipment in the 3phase Locomotive, its periodicity. Important checks to be carried out during schedules.
20. Study of 3phase Locomotives, testing, engine fitness and troubleshooting procedure.

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21. RDSO Modification and SMIs implementation and maintenance of various records for 3phase Locomotives.
22. Study of new equipments in Loco such as CVVRS, Vacuum Toilet, VCD and DPWCS.

PART -C

1. Railway service conduct rules, Pass rules, D&A rules, Hours of employment regulations, payment of wages act, WC act.
2. Procurement of Stores- stocked items and non -stocked items, imprest stores, disposal of unserviceable stores, stock verification and accountal correspondence.
3. Rules and regulations about Official Language i.e., Hindi as Official Language. Knowledge on Hindi language.

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