Central Railway

No. SUR/P/S&T/Sele./JE(SIG)/20% LDCE.quota

All concerned of S&T staff
Solapur Division.

Sub:- Modified syllabus for the post of JE (Tele) in level 06 against 20% LDCE quota (Intermediate Apprentices) circulated by APO (S&T/EL)CSMT.

Ref:-1) Notification issued vide this office letter No. SUR/P/S&T/Sele./JE(Tele)/20% LDCE quota Dated 17.01.2024.

2) CPO (Admin)/CSMT's letter No. CR-HQ/PERS(PMPC)/14/2022 dated 03/04/2024.

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In connection with the above subject and letter quoted under reference no.02 dated 03.04.2024, CPO (Admin)/CSMT has conveyed this office that, as per Railway Board letter vide dated 16.01.2024 and 08.02.2024 has advised to Zonal Railway to conduct a Centralized Computer Based Test (CBT) for Departmental Selection/LDCE/General Selection.

APO (S&T/EL)/CSMT has circulated a common syllabus for Departmental and LDCE quota of JE (Tele) vide letter dated 22.04.2024 as per HQrs guileline. (Copy Enclosed)
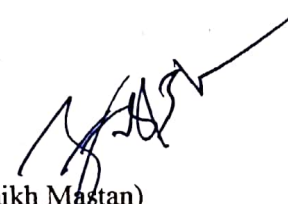
Already, this office has issued notification along with syllabus for 20% LDCE quota for the posts of JE (Tele) in Level 06 vide letter dated 17.01.2024. Now, a Centralized Computer Based Test (CBT) for the post of JE (Tele) will be conducted by Sr.DPO/NGP, Central Railway.

Hence, vide this office letter dated 17.01.2024, the syllabus circulated for the post of JE (Tele) 20% LDCE quota has been modified and the common syllabus circulated by APO (S&T/EL)/CSMT has been considered for the LDCE quota of JE (Tele).

This has the approval of Competent Authority.

This is for information and wide publicity, please.

DA:- Modified Syllabus of JE (Tele) circulated by HQrs office.

(Shaikh Mastan)
APO (Wel)
For Sr.DPO/SUR

C/- Sr.DSTE/SUR for information, please.
C/- Dy.CSTE (RE)/SC for information, please.
C/- DSTE (Construction)/SUR for information, please,

मध्यरेलवे/CENTRAL RAILWAY

प्रधानकार्यालय/Headquarters Office
कार्मिकविभाग/Personnel Department
सी.एस.एम.टी., मुंबई/CSMT,Mumbai-400001

क्रमांक.CR/HQ/PERS/(PSCM)2/2024   दिनांक: 22-04-2024.

सेवामें : Sr.DPO Pune, Nagpur

विषय: Syllabus for the post of JE(Tele), ML-06 of S&T Department of Central Railway.

सन्दर्भ:This office letter No. CR-HQ/PERS(PMPC)/14/2022 dated 03.04.2024.

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1. With reference to the above, a common syllabus for selection to the post of JE(Tele) Matrix Level-6 of S&T Department for LDCE(Ranker) and Departmental quota duly approved by Competent Authority is enclosed herewith for your information and record please.

Sd/-(Prem Kumar Sharma)
APO(S&T/EL)
/-PCPO

Copy to: DRM(P)BB, BSL, NGP, SUR, PA – For information please.
Copy to: DY.CPO(HRD) – for information please.

Digitally Signed by Prem
Kumar Sharma
Date: 22-04-2024 18:29:24
Reason: Approved
/-PRINCIPAL CHIEF PERSONNEL OFFICER

Syllabus for selection to the Post of JE Tele, Level-6 for LDCE / Department Quota		
1	Basic concepts	- Telecommunication Manual - Duties, Responsibilities and Inspection schedule of JE/Tele
2	Power plant	- Power supply requirements of Telecommunication installations like OFC hut, exchange, Control Office, Way side station, VF Repeater etc - AC power supply distribution arrangements, DC power plant system i.e. Number of Battery Banks & Mode of Operations, type and capacity of Battery and load requirement. -Basic knowledge of Secondary Cells LA, VRLA, Nickel Cadmium cells and other rechargeable cells, their advantages and disadvantages. -Maintenance of Secondary cells, initial charging, float charging, trickle and boost charging of secondary cells. -Different types of battery chargers used, conventional and SMPS based and Voltage stabilizers. -Standby power supply arrangements like UPS, Solar power Supply arrangements, Generators and its applications. - Requirement of power supply rooms - Records and reports to be maintained. -Load Calculation of Telecom Equipment.
3	Train traffic control system	-Circuits of various types of control communication including those used in electrified areas. 4W/2W control telephones, Emergency portable field telephones, installation maintenance and diagnostics and testing in electrified and non electrified areas. -HQ control office equipment including DTMF signaling equipment. -Way station selective calling DTMF equipment. -Control patching arrangements, control communication over OFC. -Different types of communication system in use for mid section LC gates and their power supply requirements. -VoIP based control communication
4	Line plant practice	-Code of practice of various types of underground cables like PIJF multi pair, quad cables and their jointing procedure. -Cable laying practices and protection arrangements while crossing track, roads water logging areas, culverts and bridges. -Periodical tests and measurements of underground cables and maintenance practice.
5	OFC and Digital Multiplexing	-Installation, maintenance of OFC and system design concepts. -PDH and SDH block diagram. -NMS, path protection arrangements. - Ring protection of OFC path by RAILTEL
6	Telephone exchange	-Installation and Maintenance of Different types of exchanges like ISDN, WLL etc - Open source software Asterisk based Telephone Exchange -Knowledge of different types of telephones using Digital, DECT, DKT and FCT/FWP etc. -Operation/Testing and Installation of IP Telephones -VoIP Exchange
7	Passenger information system	-Interactive voice Response System (IVRS) -Prerecorded Announcement and Auto Announcement System. -Train Indicator, Coach Guidance System, at a glance board and their related system hardware and software - Basic concepts of IPIS -Clock (Analog, Digital and GPS based) -POET, Interactive Touch Screen system etc. - Connectivity of IPIS with NTES

8	Video Surveillance system	Basic knowledge of -Hardware and software requirements like different types cameras/Switches, servers, backup and NMS -Installation and maintenance of IP based video Surveillance system - Block diagram of VSS at Station installed by RAILTEL
9	Video Conferencing	- Video conference systems and their networking. - VC Arrangement for flag off of Vande Bharat train by Prime Minister from site - VC Arrangement for flag off of Vande Bharat train at many locations by Prime Minister from remote site - Getting internet bandwidth from ISP at remote locations/ stations by providing antenna at nearby existing tower of ISP like Jio - Role of NIC, TP NOC in VC
10	Data communication	- Data communication equipment like, Hubs, Switches, Routers, LAN extenders, media converters, Modems etc. -Concepts of IP networking of UTS/PRS, FOIS, RAILNET, DATA LOGGERS -Concepts of Voice logging facilities for various applications.
11	IP Address	- IPv4 and IPv6 - Network and Host IP address , Subnet mask - Addressing scheme in IPv4 and IPv6 -Connectivity of IPv6 in Railnet using open source firewall - Open source pfsense Firewall
12	Miscellaneous	-Application of VHF communications in Railway working i.e., hand held and portable VHF sets. -Installation maintenance practices of VHF sets, antenna system and their power supply requirements. -VHF Frequency channeling plan for different applications/departments. - 25 Watt VHF sets and its battery and 6 dB antenna used for long distance block section -Application of VSAT connectivity for Railway applications like remote FOIS locations for accident site video broadcasting etc. -Minimum requirements of telecom equipment in ARTs. -Essential requirement of communication facilities at DM room and at important stations during Disasters. -Provision and maintenance of telephones in inspection carriages, Track recording cars and other VIP specials. -Public address system, load distribution -Protection arrangement for different telecom installation from lightning, different types of earthing arrangement in practice - Precautions to be observed during monsoon. - PCDO, MCDO, failure analysis report, Joint Inspection. - Numbering scheme of CUG phones -SIM Aggregator in ART - Block diagram of WiFi installed at stations
13	Cable	-Various type of underground and outdoor (switch board) cables used in Indian Railway for telecommunication circuit. -Quad allocation in quad cable along with optical fibre and without optical fibre cable. -Periodically test of 6 quad & PIJF cables. -Name of the parameters which are measured in underground cable, -Procedure for joining of 6 quad cables. - Annual maintenance of cables in RE and Non- RE areas
14	IPMPLS	-Basic concept of IPMPLS & TAN developed by RDSO

15	LTE	-Basic concept of LTE - Survey of LTE for tower
16	Tunnel Communication	-Basic block diagram of tunnel communication for Walkie Talkie (VHF) -Leaky cable, master unit , power supply in tunnel, etc
17	Passenger Amenities	-Minimum Essential Amenities at stations -Recommended Amenities - Codal life of telecom equipments like cable, CCTV camera, PC etc - Class of stations like NSG1-6, SG1-3, HG1-3
18	Optical fibre communication	-Principle of optical fibre communication -Block diagram and advantages of optical fibre communication system. -List of measuring tools used for OFC communication -Measurement of OFC Parameter by using OTDR, power source, power meter -Procedure and practice used for laying of OFC and 4/6 quad cables along with the track. -Splicing of OFC, types of splicing procedure for splicing. -Various parameter of OFC system e.g. wavelength, expected splicing loss.
19	Land Line Communications	Parameters, trenching, laying, jointing, termination of quad cables, testing, Faults, Localization and remedies in 4 quad/ 6 quad cables, block working, LC gate communication & emergency communications maintenance schedules and Periodical tests.
20	Computer basics	- MS office (Word, Excel, Power Point) -Internet, worldwide web, e-mail and multimedia.
21	Safety	- Safety precaution in RE area - Safety precautions at worksite - Safety of telecom equipments - Safety in non interlocked (NI) working at stations during doubling etc - Fire Detection & Alarm system - Types of Fire Extinguisher - Safety of staff working in Tunnel
22	Passenger Complaints	- Passenger complaints portal- Railmadad , 139, X and CPGRAM - How to reduce disposal time and Pendency time in Railmadad
23	Establishment matters	-Establishment matters of day to day nature including Leave rules, Pass rules, Muster sheet, HOER, preparation of rosters for workers. -The official languages (use For official purpose) - Monthly stores returns materials at site account, Daily transaction register, Returned stores, S 1313 / S 1319 requisition and issue note, Tool and plant for maintenance. -Discipline and appeal rule (DAR) a) Various minor penalties b) Various major penalties
24	राजभाषा	विभिन्न क्षेत्र , राजभाषा नियम

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