



GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
WESTERN RAILWAY
RAILWAY RECRUITMENT CELL



Parcel Depot, Alibhai Premji Road,
Grant Road (East), Mumbai – 400 007
Website : <https://www.rrc-wr.com>

Notification No. 01/2021 GDCE Dated 11/10 /2021.

GENERAL DEPARTMENTAL COMPETITIVE EXAMINATION (GDCE)

For JUNIOR ENGINEER (Track Machine) – 39 Posts and TECHNICIAN III (Track Machine) – 24 Posts

Railway Recruitment Cell invites **ONLINE** applications from **eligible serving employees** of Western Railway as on the date of notification for filling up the posts of JUNIOR ENGINEER (Track Machine) - 39 POSTS in Level-06 and TECHNICIAN III (Track Machine) - 24 POSTS in Level - 02 against GDCE Quota as per vacancies indicated herein.

Schedule for ONLINE Registration & submission of Online Application :

Opening Date & Time	22/10/2021 from 10.00 hrs.
Closing Date & Time	21/11/2021 up to 18.00 hrs.

● **Important :**

- Please read all the instructions in this notification carefully and ensure that you are eligible to apply before filling the Online application form available on the RRC - WR website-<https://www.rrc-wr.com>
- Employees are advised in their own interest to submit Online Application much before the closing date to avoid possibility of any failure to submit application due to heavy load/jam on website.
- In case the employee's does not have a VALID personal e-mail ID, he/she should create his / her personal e-mail ID before applying online application and must maintain that e-mail ID till the end of recruitment process.
- **Employees should regularly visit only RRC WR website <https://www.rrc-wr.com> for further updates.**

A. DETAILS OF VACANCIES: The Post parameters ie. Medical Classification and suitability for PwBD will be as per RRB standards.

CAT. NO.	POST	DEPARTMENT	MED. CLASS.	Suitability for PwBD	UR	SC	ST	OBC	TTL
1	JUNIOR ENGINEER (TRACK MACHINE)	ENGINEERING	A3	LD (OL,DW,AAV)	21	9	4	5	39
2	TECHNICIAN III (TRACK MACHINE)		A3	HI & LD(OL)	20	2	1	1	24

ELIGIBILITY CRITERIA :-

CAT. NO.		DEPARTMENT	MINIMUM EDUCATIONAL QUALIFICATION
1	JUNIOR ENGINEER (TRACK MACHINE)	ENGINEERING	Three years Diploma in (a) Mechanical / Production /Automobile / Electrical / Electronics / Instrumentation & Control Engineering from a recognized University/Institute OR (b) a combination of any sub stream of basic Streams of Mechanical / Production / Automobile / Electrical/ Electronics /Instrumentation & Control Engineering From a recognized University/Institute. (#) SEE NOTE (i) below
2	TECHNICIAN III (TRACK MACHINE)	ENGINEERING	Matriculation / SSLC plus ITI from recognised institutions of NCVT/SCVT in the trades of Fitter / Electrician / Electronics Mechanic / Instrument Mechanic / Mechanic Mechatronics / Mechanic Diesel / Mechanic Motor Vehicle / Welder / Machinist OR Matriculation / SSLC plus Course Completed Act Apprenticeship (CCAA) in the trades mentioned above. (#) SEE NOTE (i i) below

I. MINIMUM EDUCATIONAL QUALIFICATION:-

- (#) (i) Higher qualifications such as B.E. / B.Tech. are also acceptable in lieu of 3 years Diploma in Engineering in the same discipline.**
- (ii) Diploma / Degree in Engineering will not be accepted in lieu of Course Completed Act Apprenticeship / ITI for the post of Technician. Graduate Act Apprentice will not be accepted in lieu of Course Completed Act Apprenticeship (CCAA).**

II. AGE CRITERIA: - (As on 01/01/2022)

	UR	OBC	SC/ST	LOWER LIMIT
UPPER LIMIT	02/01/1980	02/01/1977	02/01/1975	01/01/2004 18 years
Age Group	42 years	45 years	47 years	

Employees should ensure that their Date of Birth should match with the entries recorded in the Service Record.

III. COMMUNITY CERTIFICATE:-

- **Employees should ensure that their Caste should match with the Service Sheet entries.**
- Candidates who claim to be **SC/ST** should invariably produce their Caste Certificates at the time of Document Verification in the prescribed Central Government Format (**Annexure 'A'**).
- Candidates who claim to be **OBC**, should invariably produce **OBC certificate** with non-creamy layer certificate valid for the current year **2021-2022** and also **latest certificate** at the time of Document Verification in Central Government format for appointment in Central Government service (**Annexure- ' B' & 'C'**).
- In case the SC/ST/OBC candidates do not submit their Caste Certificates, their claim for reservation status (SC/ST/OBC) will not be entertained.
- The candidature/application of the employees who do not submit the caste Certificate, if fulfilling all the eligibility conditions for General (Un-reserved) category, will be considered under General (UR) vacancy only.

C RECRUITMENT PROCESS :

- Recruitment process will involve Computer Based Test (CBT), Document Verification, Medical Examination.
- **Computer Based Test (CBT)**

I. Junior Engineer (TMC)

- Pattern of CBT
 - i. Duration : 90 minutes (120 Minutes for eligible PwBD candidates accompanied with Scribe)
 - ii. No of Questions : 100
 - iii. The question paper will be English / Hindi / Marathi /Gujarati.
 - iv. There shall be negative marking in the CBT and 1/3 of the allotted marks for each question shall be deducted for every wrong answer.
 - v. The Questions will be of objective type with multiple choices and are likely to include questions pertaining to General Awareness, Physics and Chemistry, Basics of Computers and Applications, Basics of Environment and Pollution Control and Technical abilities for the post.
 - vi. For Detailed Syllabus, please See Annexure "D, E, F, G".
 - vii. Minimum percentage of marks for eligibility in various categories: UR-40%, OBC-30%, SC-30%, ST -25%.

II. Technician Gr III (Track Machine)

Pattern of CBT

1. Total Duration: 2 hours and 30 Minutes (for Part A and Part B together)

The CBT shall have two parts viz Part A and Part B as detailed below.

The question paper will be English / Hindi / Marathi /Gujarati. There shall be negative marking in the CBT and 1/3 of the allotted marks for each question shall be deducted for every wrong answer.

2. **PART A** Duration: 90 Mins, No of Questions: 100

Minimum percentage of marks for eligibility in various categories: UR -40%, OBC-30%, SC-30%, ST -25%. The marks scored in Part A alone shall be used for short listing of candidates for further stages of recruitment process subject to the condition that the candidate is securing qualifying mark in Part B.

PART B Duration: 60 Min, No of Questions: 75

Qualifying Mark: 35 % will be applicable to all candidates and no relaxation is permissible

3. For Detailed Syllabus please See Annexure "H ".

D DOCUMENT VERIFICATION :

- a. The candidates who qualify the CBT, will be called for **Document Verification and e-Call letter will be available for downloading from RRC Website.**
- b. Production of original documents of Date of birth, Educational Qualification Caste Certificate, along with **one set of self-attested photo copies** of all certificates, 2 recent passport size Photographs (self attested on reverse) e-call letter and Valid photo ID viz. Identity Card issued by his/her Employer in ORIGINAL on the day of Document Verification is mandatory. Documents valid for proof of age are Standard 10th or its equivalent Certificate or Mark Sheet indicating Date of Birth OR School Leaving Certificate indicating Date of Birth.
- c. Certificates in languages other than English or Hindi should be accompanied by an attested translation in English/Hindi.

E GENERAL INSTRUCTIONS :

1. All regular employees possessing prescribed educational qualification as indicated in Para B, **working in 7th CPC Level lower than the Grade Pay/Scale** for which GDCE is being conducted are eligible to appear in GDCE selection.

2. All regular employees possessing prescribed educational qualification as indicated in Para B **working in same 7th CPC Level** for which GDCE is being conducted are eligible to appear in selection from non-safety to safety category posts as well as safety to safety category posts.
3. Those employees who are appearing in and/or awaiting for results of final examination of minimum qualification at the time of applying for the post are not eligible. The employees should possess the requisite educational qualification on the closing date of application and **the same should also be endorsed in the Service Sheet of the employees. Employees are requested to ensure that their Education qualification as mentioned in their Online application is duly entered in their service record.**
4. Academic qualification must be from recognized Educational Institution / Board, otherwise candidature will be rejected.
5. Zone of consideration for GDCE will encompass staff belonging to all the Departments/Branches in all Divisions/Workshops/Headquarters office/Extra-Divisional Offices, as the case may be, subject to their applying in response to the notification.
6. **RPF/RPSF personnel are not eligible to apply against the GDCE scheme in terms of Railway Board's letter No. E (NG) I/2002/PM2/9 dated 11.8.2003.**
7. **There is no separate reservation of posts for Persons with Benchmark Disabilities and Economically Weaker Sections as per Railway Board's letter No. E(NG)I-2018/PM1/23 dated 02/05/2019.[RBE-72/2019].**
8. Employees selected under GDCE scheme shall be subjected to initial training of the same duration prescribed for directly recruited employees through RRBs.
9. Single stage written examination - Computer Based Test (CBT) followed by Document Verification and Medical examination will be conducted.
10. The date, time and venue of the examination will be fixed by RRC/ Mumbai and will be intimated to the eligible employees through website as well as through SMS on registered Mobile number/or through email on registered mail address. The employees should regularly visit the website.
11. The request for postponement of examination or change of venue **will not be entertained** under any circumstances.
12. Eligibility of the employees will be considered only on the strength of the information furnished in the ONLINE Application and the uploaded Educational/Technical Qualification Certificate. **Employees need NOT send printouts** of application or Certificates or copies to RRC/WR OR DIVISIONS concerned by post.
13. RRC conduct verification of eligibility conditions with reference to original documents only after the employees have qualified in all the stages of examinations and are shortlisted for Document Verification. RRC may reject the candidature of any applicant at any stage of recruitment process in case the candidate is found to be not fulfilling the requisite criteria and if appointed, such a candidate is liable to be removed from service summarily.
14. On completion of all stages of recruitment process, RRC will allot Division /Unit as per the option of the eligible employees ONLY subject to merit, medical standard and vacancy position.
15. Special Note for all Employees seeking reservation/relaxation benefits: All those employees seeking reservation/relaxation benefits available for SC/ST/OBC-NCL must ensure that they are entitled to such reservation/relaxation as per eligibility prescribed in the Rules/Notification. They should be in possession of all the requisite certificates in the prescribed format in support of their claim as stipulated in the Rules/Notification.
16. Railway Administration reserves the right to alter the modus of Examinations or re-conduct examination or to cancel part or whole process at any stage.
17. The selection shall be made strictly as per merit in the written examination and found fit in prescribed Medical category. Category-wise merit list will be prepared.
18. The employees recommended for appointment should be FIT in prescribed Medical category.
19. Shortlisted employees will be called for verification of their original documents. During document verification the employees has to bring all necessary documents in original. After satisfactory Document Verification, the candidate will be considered for empanelment subject to fulfilment of other criteria.
20. Employees recommended for a particular category of post with a Higher Medical classification will not be considered for any alternative post with lower medical classification in the event of their medical unfitness.

21. The number of vacancies indicated in the GDCE notification is provisional and may reduce or even become NIL depending upon the actual need of the Railway Administration. The administration also reserves the right to cancel the notified vacancies at its discretion and such decision will be final and binding on all.
22. Selected employees are liable to be posted anywhere on Western Railway. Decision of Railway Administration in this regard shall be final.
23. In the event of any mis-statement / discrepancy in the particulars / incomplete or invalid application or employee has suppressed any relevant information or the employee otherwise does not satisfy the eligibility criteria for the post being detected at any stage, his / her application / candidature will be cancelled or services will be terminated without any notice.
24. WR reserves rights to rectify inadvertent errors or omission at any stage of examination and an erroneously appointed employee shall be liable to be terminated from Rly. Service. **WR will not be responsible for any inadvertent errors.**
25. Employees should read the details and instructions on the e-Call letter carefully and follow them scrupulously. Failure to comply with the instructions may lead to cancellation of their candidature.

F HOW TO APPLY:

Eligible Serving Western Railway Employees may apply ONLINE through website : www.rrc-wr.com

- 1) Employees are required to go to the link provided for filling ONLINE application and fill up the personal details/BIO-DATA carefully.
- 2) Employees should ensure that their Name, Father's Name, Date of Birth, Educational qualification, Caste, etc matches with the entries in the Service Record.
- 3) Employees are advised to indicate their personal mobile no. and personal valid e-mail IDs in the ONLINE application and keep them active during the entire recruitment process for communicating them.
- 4) Employees are further advised to visit website of RRC frequently to get the latest information or any changes about this notification. The communication with the employees will be made through SMS & e-mail only. Employees are advised to provide only their own Mobile number/ e-mail ID so that they receive such communication.
- 5) A colour photograph of size 3.5cm x 3.5cm (not older than three months from the date of application) with clear front view of the candidate without cap and sunglasses should be uploaded. The photo should be only in JPEG format-100 DPI. The size of the uploaded photograph should be upto **70 kb**. Employees may note that RRC may at any stage, reject the application for uploading old/unclear photo along with online application or for any significant variations between photographs uploaded along with online application and physical appearance of the candidate. Employees are advised to bring one copy of the same photograph along with Hall Ticket/e-Call Letter and original valid Photo ID at the time of examination. They are also advised to keep 3 copies of the same photograph for further use. . Also, scanned signature (of size 3.0 cm X 6.0 cm, upto 30kb size ONLY in JPEG format) is to be uploaded.
- 6) Certificate showing the required minimum Educational Qualification for eligibility to the post applied should be uploaded
- 7) During submission of ONLINE application, a **Unique Registration Number** will be generated and issued to each candidate. Employees are advised to preserve/note their Registration Number for further stages of recruitment process/ correspondence.
- 8) To avoid last minute rush, employees are advised in their own interest to submit ONLINE application much before the closing date.

G. STEPS TO SUBMIT ONLINE APPLICATION

1. Visit the website of RRC-WR i.e. www.rrc-wr.com
2. Click on the "ONLINE/E-APPLICATION" link.
3. Click on the "New Registration" link.

4. Fill in the basic details viz. Name, Father's Name, Date of Birth, Community, e-mail Address and Mobile number. On submission of required details, an e-mail will be received in the registered e-mail ID. Open inbox of your registered e-mail and click on the link received to proceed further.
5. Login using the Registration Number & Password sent in the e-mail.
6. Follow the instructions and complete the registration process step-by-step.
7. Upload your scanned recent colour photograph (of size 3.5 cm X 3.5 cm, upto 70kb, 100 DPI, ONLY JPEG format), scanned signature (of size 3.0 cm X 6.0 cm, upto 30kb size ONLY in JPEG format) and the minimum required Educational/Technical Qualification Certificate.
8. Candidates are advised to take a printout of their application which is required to be produced at the time of Document Verification.
9. **Before submitting the application, employees should ensure and check the accuracy of all the details filled and then press the SUBMIT button for online application.**
10. **For detailed procedure of ONLINE application refer to the e-help link provided on the RRC website i.e. www.rrc-wr.com.**

H. INVALID APPLICATIONS:-

1. Application without scanned Photo and scanned Signature.
2. Applications of over-aged or under-aged candidates and Date of Birth not filled in or wrongly filled.
3. Applications not having the requisite Education Qualification at the time of closing date of application.
4. Any other form of irregularities as observed and considered as invalid by RRC.

I. ACTION AGAINST EMPLOYEES FOUND GUILTY OF MISCONDUCT:-

- 1 Employees are warned that they should not furnish any particulars that are false or suppress any material information while filling in the application form.
- 2 Employees are also warned that they should in no case attempt to alter or otherwise tamper with any entry in a document or its attested/certified copy submitted by them nor should they submit a tampered/fabricated document. If there is any inaccuracy or any discrepancy, an explanation regarding such discrepancy should be submitted.
- 3 Misconduct on the part of the candidate at any stage of the recruitment process is strictly prohibited.
- 4 Employees shall not bring or attempt to bring any political or other influence to further his/her interest in respect of recruitment. Attempting in such practice will be viewed seriously and their candidature shall be rejected without any notice.
- 5 A candidate found by the Railway Recruitment Cell to be guilty of:
 - a. Canvassing support for his candidature by any means;
 - b. Impersonation;
 - c. Taking help of impersonator ;
 - d. Submitting fabricated/tampered documents ;
 - e. Making statements which are incorrect or false, or suppressing material information ;
 - f. Resorting to any other irregular or improper means for furtherance of his candidature for the selection ;
 - g. Using unfair means during the examination, or possessing, carrying or using mobile phone, calculator or any other such instrument;
 - h. Committing mischief in any other manner in the examination hall ; Harassing or doing bodily harm to the staff employed by the RRC-WR for the conduct of the test may, in addition to action under relevant provisions of the Rules/Laws which render him liable to criminal prosecution may further-
 - i. be disqualified by the RRC-WR from selection for which he is a candidate, or
 - ii. be debarred, either permanently or for a period decided by the RRC-WR, from any examination or selection conducted by any of the Railway Recruitment Cells / Railway Recruitment Boards or/and
 - iii. be taken up for disciplinary action under the appropriate rules.

NOTE:-

1. List of eligible employees will be notified on RRC website.
2. e- Call letter for the written examination will be issued ONLINE.
3. For any legal issues arising out of this Employment Notice, the Jurisdiction shall be under Hon'ble Central Administrative Tribunal, Mumbai only.

J. RAILWAY RECRUITMENT CELL'S DECISION WILL BE FINAL:

The decision of RRC-WR in all matters relating to eligibility, acceptance or rejection of the applications, issue of free rail passes, penalty for false information, mode of selection, conduct of examination(s), allotment of examination centre, allotment of posts/places to selected employees and all other matters related with conduct of recruitment process will be final and binding on the employees, and no enquiry or correspondence will be entertained in this connection.

**Dy. CPO (Gazetted)
Railway Recruitment Cell
Western Railway**

PROFORMA FOR CASTE CERTIFICATE FOR SC/ST EMPLOYEES

(Format of certificate to be produced by employees belonging to Scheduled Castes or Scheduled Tribes in support of Claim)

This is to certify that Shri /Smt. / Kum* _____ Son / Daughter* of _____ of village / town* _____ District / Division* _____ of State / Union Territory* _____ belongs to the _____ Caste / Tribe* which is recognized as a Scheduled Caste / Scheduled Tribe* under:

- The Constitution (Scheduled Caste) / (Scheduled Tribes) Order, 1950.
- The Constitution (Scheduled Caste) (Union Territories) Order, 1951.
- The Constitution (Scheduled Tribes) (Union Territories) order, 1951 (as amended by the Scheduled Caste and Scheduled Tribes Lists Modification), Order, 1956. The Bombay Re-organisation Act 1960, The Punjab Re-organisation Act, 1966, The State of Himachal Pradesh Act, 1970, The North Eastern Areas Re-organisation Act, 1971, and the Scheduled Caste / Scheduled Tribes Order (Amendment) Act, 1976.
- The Constitution (Jammu and Kashmir) Scheduled Caste / Scheduled Tribe Order, 1956.
- The Constitution (Andaman and Nicobar Islands) Scheduled Tribes Order, 1959.
- The Constitution (Dadra and Nagar Haveli) Scheduled Castes / Scheduled Tribes Order, 1962.
- The Constitution (Pondicherry) Scheduled Castes Order, 1964.
- The Constitution Scheduled Tribes (Uttar Pradesh) Order, 1967.
- The Constitution (Goa, Daman and Diu) Scheduled Castes / Scheduled Tribes Order, 1968.
- The Constitution (Nagaland) Scheduled Tribes Order, 1970.
- The Constitution (Sikkim) Scheduled Caste / Scheduled Tribes Order, 1978.
- The Constitution (Jammu and Kashmir) Scheduled Tribes Order, 1989.
- The Constitution (SC) Orders (Amendment) Act, 1990.
- The Constitution (ST) Orders (Amendment) Act, Ordinance 1991.
- The Constitution (ST) Orders (Second Amendment) Act, 1991.
- The Constitution (ST) Orders (Amendment) Ordinance, 1996.

2. Application in the case of Scheduled Caste / Scheduled Tribe Persons who have migrated from One State/Union Territory Administration.

This certificate is issued on the basis of Scheduled Caste / Scheduled Tribe certificate issued to Shri / Smt. / Kum* _____ Father / Mother of Shri / Smt. / Kum _____ of Village / town in District / Division* _____ of State / Union Territory _____ who belongs to the _____ Caste/Tribe* which is recognized as a Scheduled Caste / Scheduled Tribe * in State / Union Territory * _____ issued by the _____ (Name of prescribed authority) vide their No. _____ dated _____.

3. Shri/Smt./Kum.* _____ and or his/her* family ordinarily reside(s) in village/town* _____ of _____ District/Division of State/Union Territory of _____ Place _____ State/Union Territory of _____

Signature _____

Designation _____

(with seal of office) _____

(* Please delete the words which are not applicable (*) Please quote specific presidential offer (*). Delete the Paragraph which is not applicable. (*)

Please Note: The term *Ordinarily resides* used will have the same meaning as in Section 20 of the Representation of the People Act, 1950.

List of Authorities empowered to issue caste / tribe certificates :

2. District Magistrate/Additional District Magistrate/Collector/Deputy Commissioner/ Additional Deputy Commissioner / Deputy Collector/1st Class Stipendiary Magistrate/Sub Divisional Magistrate/Taluka Magistrate/Executive Magistrate/Extra Assistant Commissioner.
3. Chief Presidency Magistrate/additional Chief Presidency Magistrate/Presidency Magistrate.
4. Revenues Officers not below the rank of Tehsildar.
5. Sub Divisional Officer of the area where the employees and / or his family normally resides.

**FORM OF CERTIFICATE TO BE PRODUCED BY OTHER BACKWARD CLASSES APPLYING FOR
APPOINTMENT TO POST UNDER THE GOVERNMENT OF INDIA**

This is to certify that Shri / Smt. / Kumari.....
son / daughter of.....of Village/Town
in District/ Division in the State/Union Territory.....
.....belongs to the.....community which is recognised as a Backward Class under the Government
of India, Ministry of Social Justice and Empowerment's Resolution No Dated *.

Shri/Smt./Kum.*.....and/or his/her family ordinarily reside(s) in
the..... District / Division of theState / Union Territory. This is also to certify
that he/she does not belong to the persons / sections (Creamy layer) mentioned in column 3 (of the Schedule to the
Government of India, Department of Personnel & Training OM No. 36012/22/93-Estt(SCT), dated 8.9.1993 and modified
vide Government of India, Department of Personnel and Training O.M.No.36033/1/2013-Estt. (Res) dated 27.05.2013
and 13.09.2017**.

Date: _____

**DISTRICT MAGISTRATE / DY.
COMMISSIONER ETC.**

(Seal)

*** The authority issuing the certificate may have to mention the details of Resolution
of Government of India, in which the caste of the employees as OBC.**

**** As amended from time to time.**

**Note: The term "Ordinarily" used here will have the same meaning as in Section 20 of the Representation
of the People Act, 1950.**

PROFORMA FOR DECLARATION TO BE SUBMITTED BY **OTHER BACKWARD CLASS EMPLOYEES** ALONGWITH THE APPLICATION

DECLARATION

" I _____ son / daughter of Shri _____ resident of Village / Town / City _____ District _____ State _____ hereby declare that I belong to the _____ (Indicate your sub caste) community which is recognized as a backward class by the Government of India for the purpose of reservation in services as per orders contained in Department of Personnel and Training Office Memorandum No. 36012/22/93-Estt(SCT) dated 08.09.1993. It is also declared that I do not belong to person / sections (Creamy Layer) mentioned in column 3 of the Scheduled to the above referred Office Memorandum dated 08.09.1993 and its subsequent through O. M. No. 36033/3/2004-Estt(Res) dated 09.03.2004".

Place : _____

Signature of the Employees _____

Date : _____

Name of the Employees _____

Junior Engineer (TMC)

Syllabus of CBT

1. The syllabus for General Awareness, Physics and Chemistry, Basics of Computers and Applications, Basics of Environment and Pollution Control is as detailed below:-

a) General Awareness : Knowledge of Current affairs, Indian geography, culture and history of India including freedom struggle, Indian Polity and constitution, Indian Economy, Environmental issues concerning India and the World, Sports, General scientific and technological developments etc.

b) Physics and Chemistry: Up to 10th standard CBSE syllabus.

c) Basics of Computers and Applications: Architecture of Computers; input and Output devices; Storage devices, Networking, Operating System like Windows, Unix, Linux; MS Office; Various data representation; Internet and Email; Websites & Web Browsers; Computer Virus.

d) Basics of Environment and Pollution Control: Basics of Environment; Adverse effect of environmental pollution and control strategies; Air, water and Noise pollution, their effect and control; Waste Management, Global warming; Acid rain; Ozone depletion.

e) Technical Abilities: The educational qualifications indicated in **Para B** of the Notification, have been grouped into different exam groups as below. Questions on the Technical abilities will be framed in the syllabus defined for various Exam Groups given at Annexure- **E, F, G**.

Discipline Mapping Tables

Three years Diploma in Engineering or Bachelor's Degree in Engineering/Technology	Exam Group
Mechanical Engineering	Mechanical and Allied Engineering
Production Engineering	
Automobile Engineering	
Combination of any sub stream of basic streams of above disciplines	
Electrical Engineering	Electrical and Allied Engineering
Combination of any sub stream of basic streams of Electrical Engineering	
Electronics Engineering	Electronics and Allied Engineering
Instrumentation and Control Engineering	
Combination of sub streams of basic streams of above disciplines.	

All the candidates with the above qualification shall be tested in the Exam Group mapped as per the above chart.

A candidate possessing more than one minimum educational qualification, mapped to different Exam Groups, can choose any one Exam Group. These candidates would be eligible for all the posts for which they possess minimum educational qualifications.

2. The section wise Number of questions and marks are as below :

Subjects	Number of questions	Marks for each section
a. General awareness	10	10
b. Physics & Chemistry	10	10
c. Basic of computers and application	7	7
d. Basics of Environment and Pollution control	7	7
e. Technical abilities	66	66
Total	100	100
Time in minutes	90	

NOTE : The section wise distribution given in the above table is only indicative and there may be some variations in the actual question paper.

Syllabus for Mechanical & Allied Engineering Exam Group – JE

Sl. No.	Subject
1	Engineering Mechanics :
	Resolution of forces, Equilibrium and Equilibrant, parallelogram law of forces, triangle law of forces, polygon law of forces and Lami's theorem, couple and moment of a couple, condition for equilibrium of rigid body subjected to number of coplanar non-concurrent forces, definition of static friction, dynamic friction, derivation of limiting angle of friction and angle of repose, resolution of forces considering friction when a body moves on horizontal plane and inclined plane, calculation of moment of inertia and radius of gyration of : (a) I-Section (b) channel section (c) T-Section (d) L-Section (Equal & unequal lengths) (e) Z-Section (f) Built up sections (simple cases only), Newton's laws of motion (without derivation), motion of projectile, D'Alembert's principle, definition law of conservation of energy, law of conservation of momentum.
2	Material Science :
	Mechanical properties of engineering materials – tensile strength, compressive strength, ductility, malleability, hardness, toughness, brittleness, impact strength, fatigue, creep resistance. Classification of steels, mild steel and alloy steels. Importance of heat treatment. Heat treatment processes – annealing, normalizing, hardening, tempering, carburizing, nitriding and cyaniding.
3	Strength of Materials :
	Stress, strain, stress strain diagram, factor of safety, thermal stresses, strain energy, proof resilience and modulus of resilience. Shear force and bending moment diagram – cant lever beam, simply supported beam, continuous beam, fixed beam. Torsion in shafts and springs, thin cylinder shells.
4	Machining :
	Working principle of lathe. Types of lathes – Engine lathe – construction details and specifications. Nomenclature of single point cutting tool, geometry, tool signature, functions of tool angles. General and special operations – (Turning, facing, taper turning thread cutting, knurling, forming, drilling, boring, reaming, key way cutting), cutting fluids, coolants and lubricants. Introduction to shaper, slotter, planer, broaching, milling and manufacture of gears, heat treatment process applied to gears.
5	Welding :
	Welding – Introduction, classification of welding processes, advantages and limitations of welding, principles of arc welding, arc welding equipment, choice of electrodes for different metals, principle of gas (oxy-acetylene) welding, equipment of gas welding, welding procedures (arc & gas), soldering and brazing techniques, types and applications of solders and fluxes, various flame cutting processes, advantages and limitations of flame cutting, defects in welding, testing and inspection modern welding methods, (submerged, CO ₂ , atomic – hydrogen, ultrasonic welding), brief description of MIG & TIG welding.
6	Grinding & Finishing Process :
	Principles of metal removal by grinding, abrasives, natural and artificial, bonds and binding processes, vitrified, silicate, shellac rubber, grinding machines, classification: cylindrical, surface, tool & cutter grinding machine, construction details, relative merits, principles of centreless grinding, advantages & limitations of centreless grinding work, holding devices, wheel maintenance, balancing of wheels, coolants used, finishing by grinding, honing, lapping, super finishing, electroplating, basic principles – plating metals, applications, hot dipping, galvanizing tin coating, parkerising, anodizing, metal spraying, wire process, powder process and applications, organic coatings, oil base paint, lacquer base enamels, bituminous paints, rubber base coating.
7	Metrology :

	<p>Linear measurement – Slip gauges and dial indicators, angle measurements, bevel protractor, sine bar, angle slip gauges, comparators (a) mechanical (b) electrical (c) optical (d) pneumatic. Measurement of surface roughness; methods of measurements by comparison, tracer instruments and by interferometry, collimators, measuring microscope, interferometer, inspection of machine parts using the concepts of shadow projection and profile projection.</p>
8	<p>Fluid Mechanics & Hydraulic Machinery :</p> <p>Properties of fluid, density, specific weight, specific gravity, viscosity, surface tension, compressibility capillarity, Pascal's law, measurement of pressures, concept of buoyancy.</p> <p>Concept of Reynold's number, pressure, potential and kinetic energy of liquids, total energy, laws of conservation, mass, energy and momentum, velocity of liquids and discharge, Bernoulli's equation and assumptions, venturimeters, pitot- tube, current meters.</p> <p>Working principle & constructional details of centrifugal pump, efficiencies – manometric efficiency, volumetric efficiency, mechanical efficiency and overall efficiency, cavitation and its effect, working principle of jet & submersible pumps with line diagrams.</p>
9	<p>Industrial Management :</p> <p>Job analysis, motivation, different theories, satisfaction, performance reward systems, production, planning and control, relation with other departments, routing, scheduling, dispatching, PERT and CPM, simple problems.</p> <p>Materials in industry, inventory control model, ABC Analysis, Safety stock, re-order, level, economic ordering quantity, break even analysis, stores layout, stores equipment, stores records, purchasing procedures, purchase records, Bin card, Cardex, Material handling, Manual lifting, hoist, cranes, conveyors, trucks, fork trucks.</p>
10	<p>Thermal Engineering :</p> <p>Laws of thermo dynamics, conversion of heat into work vice versa , laws of perfect gases, thermo dynamic processes</p> <p>– isochoric, isobaric, isothermal hyperbolic, isentropic, polytrophic and throttling, modes of heat transfer, thermal conductivity, convective heat transfer coefficient, Stefan Boltzman law by radiation and overall heat transfer coefficient.</p> <p>Air standards cycles – Carnot cycle, Otto cycle, Diesel cycle, construction and working of internal combustion engines, comparison of diesel engine and petrol engine. Systems of internal combustion engine, performance of internal combustion engines.</p> <p>Air compressors their cycles refrigeration cycles, principle of a refrigeration plant.</p>

Syllabus for Electrical & Allied Engineering Exam Group – JE

Sl. No	Subject
1.	Basic concepts: Concepts of resistance, inductance, capacitance, and various factors affecting them. Concepts of current, voltage, power, energy and their units.
2.	Circuit law: Kirchhoff's law, Simple Circuit solution using network theorems.
3.	Magnetic Circuit: Concepts of flux, mmf, reluctance, Different kinds of magnetic materials, Magnetic calculations for conductors of different configuration e.g. straight, circular, solenoidal, etc. Electromagnetic induction, self and mutual induction.
4.	AC Fundamentals: Instantaneous, peak, R.M.S. and average values of alternating waves, Representation of sinusoidal wave form, simple series and parallel AC Circuits consisting of R.L. and C, Resonance, Tank Circuit. Poly Phase system – star and delta connection, 3 phase power, DC and sinusoidal response of R-L and R-C circuit.
5.	Measurement and measuring instruments: Measurement of power (1 phase and 3 phase, both active and re-active) and energy, 2 wattmeter method of 3 phase power measurement. Measurement of frequency and phase angle. Ammeter and voltmeter (both moving coil and moving iron type), extension of range wattmeter, Multimeters, Megger, Energy meter AC Bridges. Use of CRO, Signal Generator, CT, PT and their uses. Earth Fault detection.
6.	Electrical Machines: (a) D.C. Machine – Construction, Basic Principles of D.C. motors and generators, their characteristics, speed control and starting of D.C. Motors. Method of braking motor, Losses and efficiency of D.C. Machines. (b) 1 phase and 3 phase transformers – Construction, Principles of operation, equivalent circuit, voltage regulation, O.C. and S.C. Tests, Losses and efficiency. Effect of voltage, frequency and wave form on losses. Parallel operation of 1 phase /3 phase transformers. Auto transformers. (c) 3 phase induction motors, rotating magnetic field, principle of operation, equivalent circuit, torque-speed characteristics, starting and speed control of 3 phase induction motors. Methods of braking, effect of voltage and frequency variation on torque speed characteristics, Fractional Kilowatt Motors and Single Phase Induction Motors: Characteristics and applications.
7.	Synchronous Machines: Generation of 3-phase e.m.f. armature reaction, voltage regulation, parallel operation of two alternators, synchronizing, control of active and reactive power. Starting and applications of synchronous motors.
8.	Generation, Transmission and Distribution: Different types of power stations, Load factor, diversity factor, demand factor, cost of generation, inter-connection of power stations. Power factor improvement, various types of tariffs, types of faults, short circuit current for symmetrical faults. Switchgears and Protection: Rating of circuit breakers, Principles of arc extinction by oil and air, H.R.C. Fuses, Protection against earth leakage / over current, etc. Buchholz relay, Merz-Price system of protection of generators & transformers, protection of feeders and bus bars. Lightning arresters, various transmission and distribution system, comparison of conductor materials, efficiency of different system. Cable – Different type of cables, cable rating and derating factor.
9.	Estimation and costing: Estimation of lighting scheme, electric installation of machines and relevant IE rules. Earthing practices and IE Rules.
10.	Utilization of Electrical Energy: Illumination, Electric heating, Electric welding, Electroplating, Electric drives and motors.
11.	Basic Electronics: Working of various electronic devices e.g. P N Junction diodes, Transistors (NPN and PNP type), BJT and JFET. Simple circuits using these devices.

Syllabus for Electronics & Allied Engineering Exam Group – JE

Sl.No.	Subject
1.	Electronic Components & Materials
	Conductors, Semi conductor& Insulators; Magnetic materials; Jointing & Cleaning materials for U/G copper cable & OFC; Cells and Batteries (chargeable and non chargeable); Relays, Switches, MCB & Connectors.
2.	Electronic Devices and circuits
	PN Junction diodes, thyristor; Diode and triode circuits; Junction Transistors; Amplifiers; Oscillator; M u l t i v i b r a t o r , counters; Rectifiers; Inverter and UPS.
3.	Digital Electronics
	Number System & Binary codes; Boolean Algebra & Logic gates; Combinational & Sequential logic circuits; A/D & D/A converter, counters; Memories
4.	Linear Integrated Circuit
	Introduction to operational Amplifier; Linear applications; Non Linear applications; Voltage regulators; Timers; Phase lock loop.
5.	Microprocessor and Microcontroller
	Introduction to microprocessor, 8085 microprocessor working; Assembly Language programming; Peripherals & other microprocessors; Microcontrollers
6.	Electronic Measurements
	Measuring systems; Basic principles of measurement; Range Extension methods; Cathode ray oscilloscope, LCD, LED panel; Transducers
7.	Communication Engineering
	Introduction to communication; Modulation techniques; Multiplexing Techniques; Wave Propagation, Transmission line characteristics, OFC; Fundamentals of Public Address systems, Electronic exchange, Radar, Cellular and Satellite Communication.
8.	Data communication and Network
	Introduction to data communication; Hardware and interface; Introduction to Networks and Networking devices; Local Area Network and Wide area network; Internet working.
9.	Computer Programming
	Programming concepts; Fundamentals of 'C' and C ++; Operators in 'C' and C ++; Control Statements; Functions, ArrayString & Pointers, File Structure; Data Structure and DBMS
10	Basic Electrical Engg.
	DC Circuits; AC fundamentals; Magnetic, Thermal and Chemical effects of Electric current; Earthing - Installation, Maintenance, Testing,

Technician Gr III (Track Machine)

Pattern and Syllabus of CBT

The syllabus for Part A shall be as below:

- a. Mathematics Number system, BODMAS, Decimals, Fractions, LCM, HCF, Ratio and Proportion, Percentages, Mensuration, Time and Work; Time and Distance, Simple and Compound Interest, Profit and Loss, Algebra, Geometry and Trigonometry, Elementary Statistics, Square Root, Age Calculations, Calendar & Clock, Pipes & Cistern etc.
- b. General Intelligence and Reasoning Analogies, Alphabetical and Number Series, Coding and Decoding, Mathematical operations, Relationships, Syllogism, Jumbling, Venn Diagram, Data Interpretation and Sufficiency, Conclusions and decision making, Similarities and differences, Analytical reasoning, Classification, Directions, Statement – Arguments and Assumptions etc.
- c. Basic Science and Engineering The broad topics that are covered under this shall be Engineering Drawing (Projections, Views, Drawing Instruments, Lines, Geometric figures, Symbolic Representation), Units, Measurements, Mass Weight and Density, Work Power and Energy, Speed and Velocity, Heat and Temperature, Basic Electricity, Levers and Simple Machines, Occupational Safety and Health, Environment Education, IT Literacy etc.
- d. General Awareness on Current Affairs in Science & Technology, Sports, Culture, Personalities, Economics, Politics and any other subjects of importance.

3. PART B

- i This part is qualifying in nature and shall have questions from the trade syllabus prescribed by Director General of Employment & Training (DGET).
- ii. Candidates with ITI/Trade Apprenticeship qualification will be required to appear in the section having questions from the relevant trade.

Please note the Discipline mapping Table for Technician (III) Track machine will be uploaded at a later date. Kindly visit the website regularly for further updates.
