9.0 RECRUITMENT PROCESS:

(i) **ALP Post**

Only single online application has to be submitted by the candidate through the link provided on the official website of RRC. The entire Recruitment process shall involve CBT, Computer Based Aptitude Test, Document Verification & Medical examination as applicable.

Duration: 120 Min.

No of Questions: 100

The syllabus for ALP 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. Trade Specific Section: There shall be around 25 questions asked based on the syllabus prescribed by Directorate General of Training (DGT) under MSDE for the relevant trades combinedly (15 trades are specified for ALP Direct Recruitment Educational Qualification from open market). The trade syllabus can be obtained from the DGT website www.dgt.gov.in.

Candidates with ITI/Trade Apprenticeship qualification will be required to appear in the section having questions from the relevant trade. Candidates holding Degree, Diploma having eligibility for the posts of ALP have to select relevant trade from the list of trades listed against their engineering discipline.

Sl. No.	Engineering Discipline(Diploma/Degree)	Relevant trade for Qualifying Test to be selected from
1	Electrical Engineering and combination of various streams of Electrical Engineering	Electrician/ Instrument Mechanic/ Wiremen/ Winder(Armature)/ Refrigeration and Air Conditioning Mechanic
2	Electronics Engineering and combination of various streams of Electronics Engineering	Electronics Mechanic/ Mechanic Radio & TV
3	Mechanical Engineering and combination of various streams of Mechanical Engineering	Fitter/ Mechanic Motor Vehicle/ Tractor Mechanic/ Mechanic Diesel/ Turner/ Machinist/ Refrigeration and Air Conditioning Mechanic/ Heat Engine/ Millwright Maintenance Mechanic
4	Automobile Engineering and combination of various streams of Automobile Engineering	Mechanic Motor Vehicle/ Tractor Mechanic/ Mechanic Diesel/ Heat Engine/ Refrigeration and Air Conditioning Mechanic

Computer Based Aptitude Test

a) Candidates equal to 8 (eight) times the number of ALP vacancies for each notified community / category viz., UR(includes OBC-CL), OBC(NCL), SC, ST, shall be shortlisted for CBAT on the basis of their marks in CBT among the candidates only with the application of reservation rules, provided they qualify in CBT. In case more than one candidate obtain marks equal to cut-off point, they all will be shortlisted for CBAT.
b) Such shortlisted candidates should produce their Vision Certificate in the prescribed format (as per Annexure B) in original, during the CBAT, failing which they will not be permitted to appear.
c) It is mandatory to clear each test battery / section of CBAT separately, to qualify.
d) The CBAT shall be only in English and Hindi and there shall be no negative marking.
e) For information on CBAT, candidates are advised to check the following website links of RDSO –
   (i) rdso.indianrailways.gov.in -> Verticals -> Traffic and Psychology -> Psychology-Candidate's Corner, and
   (ii) https://rdso.indianrailways.gov.in/view_section.jsp?lang=0&id=0,2,456,5821,6119.
f) Qualifying Marks: All candidates (irrespective of community) must secure a minimum T-score of 42 marks in each test battery separately to qualify in the CBAT.
g) The merit list will be prepared only from amongst candidates qualifying in the CBAT. 50% weightage will be given for marks obtained in CBT and 50% weightage for score obtained in the CBAT. (vide Railway Board's letter no/2023/E(RRB)/25/38-A dated 16.04.2026)

ii) Technicians Posts

Only single online application (common to all the notified posts-Technicians) has to be submitted by the candidate through the link provided on the official website of RRC. The entire Recruitment process shall involve CBT, Document Verification and Medical examination as applicable. The Question paper for Single Stage CBT will be of 90 minutes duration for 100 questions and 120 minutes for PwBD candidates who are availing the Scribe facility.

Computer Based Test (CBT):
There will be a separate CBT for each pay level.

(A) Pattern & Syllabus of CBT for Pay Level- 5 post i.e., Technician Gr I Signal

(i) Total Duration: 90 min & Total Questions: 100

(ii) There shall be negative marking @1/3rd marks for each wrong answer.

(iii) Normalization of marks will be done for CBT held in multiple shifts.

(iv) Minimum percentage of marks for eligibility in various communities: UR–40%, EWS–40%, OBC (Non-Creamy Layer)-30%, SC-30% and ST-25%. This is also applicable to Ex. Servicemen category candidates, as per their community. These percentages of marks for eligibility may be relaxed by 2% marks for PwBD candidates in case of shortage of PwBD candidates against vacancies reserved for them.

(v) The marks scored in CBT shall be used for shortlisting of candidates for further stages of this recruitment process

(vi) Syllabus for CBT of Technician Gr I Signal: Questions will be of objective type with multiple choice answers and are likely to cover topics pertaining to the following syllabus

(vii) 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.

(viii) 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.

(ix) 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.

Mathematics: Number system, Rational and irrational numbers, BODMAS rule, Quadratic Equations, Arithmetic Progression, Similar Triangles, Pythagoras Theorem, Co-ordinate Geometry, Trigonometrical Ratios, Heights and distances, Surface area and Volume; Sets: Sets and their representations, Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers, Universal set, Venn diagrams, Union and Intersection of sets, Difference of sets, Complement of a set, Properties of Complement; Statistics: Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data; probability occurrence of events, exhaustive events, mutually exclusive events.

Basic Science and Engineering: Physics fundamentals- Units, Measurements, Mass, Weight, Density, Work, Power, and Energy, Speed and Velocity, Heat and

Temperature; Electricity and Magnetism- Electric Charge, Field, and Intensity, Electric Potential and Potential Difference, Simple Electric Circuits, Conductors, Non-conductors/Insulators, Ohm's Law and its Limitations, Resistances in Series and Parallel of a Circuit and Specific Resistance, Relation between Electric Potential, Energy, and Power (Wattage), Ampere's Law, Magnetic Force on Moving Charged Particle and Long Straight Conductors, Electromagnetic Induction, Faraday's Law, and Electromagnetic Flux, Magnetic Field, Magnetic Induction; Electronics and Measurements- Basic Electronics, Digital Electronics, Electronic Devices and Circuits, Microcontroller, Microprocessor, Electronic Measurements, Measuring Systems and Principles, Range Extension Methods, Cathode Ray Oscilloscope, LCD, LED Panel, Transducers.

It may be noted that the topics listed above are illustrative and not necessarily exhaustive.

Tentative subject-wise break-up of questions and marks for CBT of Technician Gr I Signal		
Subjects	No of Questions	Marks for each Section
General Awareness	10	10
General Intelligence and Reasoning	15	15
Basics of Computers and Applications	20	20
Mathematics	20	20
Basic Science and Engineering	35	35
Total	100	100
The subject-wise distribution given above is merely indicative. The question papers may vary.		

(B) Pattern & Syllabus of CBT for Pay Level 2 i.e., Technician Gr III

(i) Total Duration: 90 minutes & Total Questions: 100

(ii) There shall be negative marking @1/3rd marks for each wrong answer.

(iii) Normalization of marks will be done for CBT held in multiple shifts.

(iv) Minimum percentage of marks for eligibility in various communities: UR–40%, EWS–40%, OBC (Non-Creamy Layer)-30%, SC-30% and ST-25%. This is also applicable to Ex. Servicemen category candidates, as per their community. These percentages of marks for eligibility may be relaxed by 2% marks for PwBD candidates in case of shortage of PwBD candidates against vacancies reserved for them.

(v) The marks scored in CBT shall be used for shortlisting of candidates for further stages of this recruitment process.

(vi) Syllabus for CBT for Pay Level-2 posts i.e., various Categories of Technician Gr III: Questions will be of objective type with multiple choice answers and are likely to cover topics pertaining to the following syllabus

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.

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.

General Science: The syllabus under this shall cover Physics, Chemistry and Life Sciences of 10th standard level. General Awareness: on current affairs in science & technology, sports, culture, personalities, economics, politics and any other subject of importance.

It may be noted that the topics listed above are illustrative and not necessarily exhaustive.

Tentative subject-wise break-up of questions and marks for CBT of Technician Gr III

Subject	No. of Questions	Marks
Mathematics	25	25
General Intelligence & Reasoning	25	25
General Science	40	40
General Awareness	10	10
Total	100	100

The subject-wise distribution given above is merely indicative. The question papers may vary.

(iii) Junior Engineer Posts of various departments:

Only single online application (common to all the notified posts) - Junior Engineer (JE) has to be submitted by the candidate through the link provided on the official website of RRC. The entire Recruitment process shall involve Computer Based Test (CBT), Document Verification and Medical Examination as applicable. Selection is made strictly as per merit, on the basis of CBT.

CBT:
Duration: 120 minutes (160 minutes for eligible PwBD candidates accompanied with Scribe)
No of Questions: 150

Syllabus: 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. The syllabus for General Awareness, Physics and Chemistry, Basics of Computers and Applications, Basics of Environment and Pollution Control is common for all notified posts under this notification 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 mentioned against each post shown in Annexure-A, 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 as given below:

Syllabus for Civil & Allied Engineering Exam Group– JE	
S.N.	**Subject**
1	**Engineering Mechanics**- Force (resolution of force, moment of force, force system, composition of forces), Equilibrium, Friction, Centroid and Center of gravity, Simple machines.
2	**Building Construction**- Building components (substructure, superstructure), type of structure (load bearing, framed and composite structures).
3	**Building materials**- Masonry materials (stones, bricks, and mortars), Timber and miscellaneous materials (glass, plastic, fiber, aluminium steel, galvanized iron, bitumen, PVC, CPVC, and PPF).
4	**Construction of substructure**- job layout, earthwork, foundation (types, dewatering, coffer dams, bearing capacity).
5	**Construction of superstructure**- stone masonry, brick masonry, Hollow concrete block masonry, composite masonry, cavity wall, doors and windows, vertical communication (stairs, lifts, escalators), scaffolding and shoring.
6	**Building finishes**- Floors (finishes, process of laying), walls (plastering, pointing, painting) and roofs (roofing materials including RCC).
7	**Building maintenance**- Cracks (causes, type, repairs- grouting, guniting, epoxy etc.), settlement (causes and remedial measures), and re-baring techniques.
8	**Building drawing**- Conventions (type of lines, symbols), planning of building (principles of planning for residential and public buildings, rules and byelaws), drawings (plan, elevation, section, site plan, location plan, foundation plan, working drawing), perspective drawing.

9	**Concrete Technology**- Properties of various types/grades of cement, properties of coarse and fine aggregates, properties of concrete (water cement ratio, properties of fresh and hardened concrete), Concrete mix design, testing of concrete, quality control of concrete (batching, formwork, transportation, placing, compaction, curing, waterproofing), extreme weather concreting and chemical admixtures, properties of special concrete (ready mix, RCC, pre-stressed, fiber reinforced, precast, high performance).
10	**Surveying**- Types of survey, chain and cross staff survey (principle, ranging, triangulation, chaining, errors, finding area), compass survey (principle, bearing of line, prismatic compass, traversing, local attraction, calculation of bearings, angles and local attraction) leveling (dumpy level, recording in level book, temporary adjustment, methods of reduction of levels, classification of leveling, tilting level, auto level, sources of errors, precautions and difficulties in leveling), contouring (contour interval, characteristics, method of locating, interpolation, establishing grade contours, uses of contour maps), area and volume measurements, plane table survey (principles, setting, method), theodolite survey (components, adjustments, measurements, traversing), Tacheometric survey, curves (types, setting out), advanced survey equipment, aerial survey and remote sensing.
11	**Computer Aided Design**- CAD Software (AutoCAD, Auto Civil, 3D Max etc.), CAD commands, generation of plan, elevation, section, site plan, area statement, 3D view.
12	**Geo Technical Engineering**- Application of Geo Technical Engineering in design of foundation, pavement, earth retaining structures, earthen dams etc., physical properties of soil, permeability of soil and seepage analysis, shear strength of soil, bearing capacity of soil, compaction and stabilization of soil, site investigation and sub soil exploration.
13	**Hydraulics**- properties of fluid, hydrostatic pressure, measurement of liquid pressure in pipes, fundamentals of fluid flow, flow of liquid through pipes, flow through open channel, flow measuring devices, hydraulic machines.
14	**Irrigation Engineering**- Hydrology, investigation and reservoir planning, percolation tanks, diversion head works.
15	**Mechanics of Structures**- Stress and strain, shear force and bending moment, moment of inertia, stresses in beams, analysis of trusses, strain energy.
16	**Theory of structures**- Direct and bending stresses, slope and deflection, fixed beam, continuous beam, moment distribution method, columns.
17	**Design of Concrete Structures**- Working Stress method, Limit State method, analysis and design of singly reinforced and doubly reinforced sections, shear, bond and development length, analysis and design of T Beam, slab, axially loaded column and footings.
18	**Design of Steel Structures**- Types of sections, grades of steel, strength characteristics, IS Code, Connections, Design of tension and compression members, steel roof truss, beams, column bases.
19	**Transportation Engineering**- Railway Engineering (alignment and gauges, permanent way, railway track geometrics, branching of tracks, stations and yards, track maintenance), Bridge engineering (site selection, investigation, component parts of bridge, permanent and temporary bridges, inspection and maintenance), Tunnel engineering (classification, shape and sizes, tunnel investigation and surveying, method of tunneling in various strata, precautions, equipment, explosives, lining and ventilation).
20	**Highway Engineering**- Road Engineering, investigation for road project, geometric design of highways, construction of road pavements and materials, traffic engineering, hill roads, drainage of roads, maintenance and repair of roads.
21	**Environmental Engineering**- Environmental pollution and control, public water supply, domestic sewage, solid waste management, environmental sanitation, and plumbing.
22	**Advanced Construction Techniques and Equipment**- Fibers and plastics, artificial timber, advanced concreting methods (under water concreting, ready mix concrete, tremix concreting, special concretes), formwork, pre-fabricated construction, soil reinforcing techniques, hoisting and conveying equipment, earth moving machinery (exaction and compaction equipment), concrete mixers, stone crushers, pile driving equipment, working of hot mix bitumen plant, bitumen paver, floor polishing machines.
23	**Estimating and Costing**- Types of estimates (approximate, detailed), mode of measurements and rate analysis.
24	**Contracts and Accounts**- Types of engineering contracts, Tender and tender documents, payment, specifications.

Syllabus for Electrical & Allied Engineering Exam Group– JE	
S. N.	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-Land 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 oil 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	
S.N.	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; Multivibrator, 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, Array String & 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,

Syllabus for Mechanical & Allied Engineering Exam Group– JE	
S. N.	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 modules of resilience. Shear force and bending moment diagram – cant leaver 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, plainer, broaching, milling and manufacture of gears, heat treatment process applied to gears.
5	**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, CO2, 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:** 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.
8	**Fluid Mechanics & Hydraulic Machinery:** Properties of fluid, density, specific weight, specific gravity, viscosity, surface tension, compressibility capillarity, Pascal's law, measurement of pressures, concept of buoyancy. 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, venturi meters, pitot-tube, current meters. 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.
9	**Industrial Management:** 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. 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.
10	**Thermal Engineering:** Laws of thermo dynamics, conversion of heat into work vice versa , laws of perfect gases, thermo dynamic processes – 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. 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. Air compressors their cycles refrigeration cycles, principle of a refrigeration plant.

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

Subjects	No. of Questions	Marks for each Section
General Awareness	15	15
Physics & Chemistry	15	15
Basic of Computers and Applications	10	10
Basics of Environment and Pollution Control	10	10
Technical Abilities	100	100
Total	150	150
Time in Minutes	120	

The section wise distribution given in the above table is only indicative and there may be some variations in the actual question papers. Virtual calculator will be made available on the Computer Monitor during CBT.

Discipline Mapping Tables:

Sl. No.	Three years Diploma in Engineering or Bachelor's Degree in Engineering/Technology	Exam Group
1.	Mechanical Engineering	Mechanical and Allied Engineering
	Production Engineering	
	Automobile Engineering	
	Manufacturing Engineering	
	Mechatronics Engineering	
	Industrial Engineering	
	Machining Engineering	
	Tools and Machining Engineering	
	Tools and Die Making Engineering	
	Combination of any sub stream of basic streams of above disciplines	
2.	Electrical Engineering	Electrical and Allied Engineering
	Combination of any sub stream of basic streams of Electrical Engineering	
3.	Electronic Engineering	Electronics and Allied Engineering
	Instrumentation and Control Engineering	
	Communication Engineering	
	Computer Science and Engineering	
	Computer Engineering	
	Computer Science	
	Information Technology	
	Combination of sub streams of basic streams of above disciplines.	
4.	Civil Engineering	Civil and Allied Engineering
	Combination of any sub streams of basic streams of Civil Engineering	
	B.Sc. in Civil Engineering of 3 years duration	

Note: 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, provided he/she opts for the post(s) whose educational qualification is mapped to the chosen exam group. However, these candidates would be eligible for all the opted posts as per educational qualification.

NORMALISATION OF THE MARKS:

The raw marks for single session paper and normalized marks for multi session paper will be used for computing Merit Index, which is a common benchmark for generating merit for candidates from different Exam Groups.

CALCULATION OF MERIT INDEX FOR ALL PAPERS

a) In order to generate a common merit list comprising of candidates who gave examination from different exam groups, but eligible for a common post, merit index will be computed.
b) For all papers for which there is only one session, actual marks obtained by the candidates will be used for calculating merit index, while for papers in multi-sessions; normalized marks will be calculated corresponding to the raw marks obtained by a candidate and the merit index will be calculated based on the normalized marks.

The Merit Index will be computed using the formula given below:

$$\text{Merit Index} = Sq + (St - Sq)\ \frac{M - Mq}{Mt - Mq}$$

(Merit Index is the relative score of a candidate within the discipline.)

M: Marks obtained by the candidate (actual/raw marks for single session exam and normalized marks for multi session exam. Mq: The qualifying marks for general category candidate in the paper (40).

Mt :The mean marks of top 0.1% or top 10 whichever is larger of the candidates who appeared in the paper (in case of multi session exam including all sessions)

Sq: 350 is the score assigned to Mq.

St: 900 is the score assigned to *Mt* .

The qualifying marks (Mq) for general category candidate is 40.
The Merit Index will be calculated for UR, OBC(NCL), SC, ST candidates whose actual marks for single session exam and normalized marks for multi session exam are equal or above the community qualifying marks prescribed in Para 10.III of General Instructions. Based on the Merit Index generated, a combined merit list of the candidates of different disciplines/Exam Group will be prepared in the descending order of merit and the allotment of the preference will be done on the basis of this merit list.

(iv) Goods Train Manager, Station Master and Junior Account Assistant cum Typist Post

Only single online application has to be submitted by the candidate through the link provided on the official websites of RRC. The Recruitment process shall involve Computer Based Test (CBT), Computer Based Typing Skill Test/Computer Based Aptitude Test (as applicable) and Document Verification/Medical Examination. Selection is made strictly as per merit, on the basis of above mentioned Recruitment stages.

Computer Based Test (CBT)

Exam Duration in Minutes	No. of Questions (each of 1 mark) from			Total No. of Questions
90	General Awareness	Mathematics	General Intelligence and Reasoning	
	50	35	35	120

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

The standard of questions for the CBT will be generally in conformity with the educational standards prescribed for the posts. The examination duration will be 120 minutes for candidates who are eligible for use of a scribe (except Goods Train Manager & Station Master)

The Questions will be of objective type with multiple choices and are likely to include questions pertaining to:

a **Mathematics**: Number System, Decimals, Fractions, LCM, HCF, Ratio and Proportions, Percentage, Mensuration, Time and Work, Time and Distance, Simple and Compound Interest, Profit and Loss, Elementary Algebra, Geometry and Trigonometry, Elementary Statistics etc.

b **General Intelligence and Reasoning:** Analogies, Completion of Number and Alphabetical Series, Coding and Decoding, Mathematical Operations, Similarities and Differences, Relationships, Analytical Reasoning, Syllogism, Jumbling, Venn Diagrams, Puzzle, Data Sufficiency, Statement- Conclusion, Statement- Courses of Action, Decision Making, Maps, Interpretation of Graphs etc.

c **General Awareness:** Current Events of National and International Importance, Games and Sports, Art and Culture of India, Indian Literature, Monuments and Places of India, General Science and Life Science (up to 10th CBSE), History of India and Freedom Struggle, Physical, Social and Economic Geography of India and World, Indian Polity and Governance-constitution and political system, General Scientific and Technological Developments including Space and Nuclear Program of India, UN and Other important World Organizations, Environmental Issues Concerning India and World at Large, Basics of Computers and Computer Applications, Common Abbreviations, Transport Systems in India, Indian Economy, Famous Personalities of India and World, Flagship Government Programs, Flora and Fauna of India, Important Government and Public Sector Organizations of India etc.

Computer Based Aptitude Test (CBAT) will be conducted after qualifying the CBT (Only for candidates who have opted for Station Master)

Qualifying marks: The candidates need to secure a minimum T-Score of 42 marks in each of the test batteries to qualify. This is applicable to all candidates irrespective of community or category i.e. irrespective of SC/ST/OBC-NCL/EWS/EXSM and no relaxation in the minimum T-Score is permissible.

Candidates equal to 8 times the number of vacancies of Station Master for each of the communities i.e. UR, OBC-NCL, SC, ST shall be short listed for CBAT based on their performance in CBT from among the candidates who have opted for the post of Station Master. Such shortlisted candidates should produce the Vision Certificate in the prescribed format as per Annexure VII in original during CBAT, failing which they will not be permitted to appear in the CBAT. Candidates have to submit declaration in Annexure B during DV.

Candidates will have to qualify in each of the test batteries of CBAT for considering them for the post of Station Master. The CBAT shall have questions and answer options only in English and Hindi. There shall be no negative marking in CBAT.

The Station Master merit list will be drawn only from amongst the candidates qualifying in the CBAT, with 70% weightage for the marks obtained in the CBT and 30% weightage for the marks obtained in CBAT.

Candidates are advised to visit websites of RDSO (www.rdso.indianrailways.gov.in Directorate -->Psycho Technical Directorates>Guidelines for Aptitude Test) for question patterns and other details of CBAT. >

Computer Based Typing Skill Test (CBTST):

For the posts of Junior Accounts Assistant cum Typist. Computer Based Typing Skill Test (CBTST) of qualifying nature (marks obtained in typing skill test shall not be added for making merit) shall be conducted for which the number of candidates equal to eight times the number of vacancies for each of the community shall be called for. The candidates should be able to type 30 words per minute (WPM) in English or 25 WPM in Hindi on Personal Computer only without editing tools and spell check facility. For guidelines of those who appear for typing skill test in Hindi, Kruti Dev and Mangal font shall be made available for typing skill test on Personal Computer. Exemption in Typing Skill Test may be extended to candidates who are permanently disabled due to Blindness/Low Vision, Cerebral Palsy & Loco Motor Disability with not less than 40% permanent disability. Such eligible PwBD candidates have to upload a scanned copy of Typing Skill Test Exemption Certificate issued by the Competent Medical Board in the website of RRC before conduct of typing skill test in the format at Annexure G. The merit will be drawn only for the candidates qualified in the CBTST or CBTST exempted PwBD candidates based on performance in CBT.

The summary of the various stages of recruitment process detailed as above for the notified posts are tabulated below:

Sl. No.	Name of the Post	Level in 7th CPC	CBT	Skill Test Requirement
1	Goods Train Manager	5	Common for all Posts	—
2	Junior Account Assistant cum Typist	5	Common for all Posts	Computer Based Typing Skill Test
3	Station Master	6	Common for all Posts	Computer Based Aptitude Test

(v) Commercial Clerk cum Ticket Clerk, Accounts Clerk cum Typist and Junior Clerk cum Typist post

Only single online application has to be submitted by the candidate through the link provided on the official websites of RRC. The Recruitment process shall involve Computer Based Test (CBT), Computer Based Typing Skill Test (as applicable) and Document Verification/Medical Examination. Selection is made strictly as per merit, on the basis of above mentioned Recruitment stages.

Computer Based Test (CBT)

Exam Duration in Minutes	No. of Questions (each of 1 mark) from			Total No. of Questions
90	General Awareness	Mathematics	General Intelligence and Reasoning	
	50	35	35	120

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

The standard of questions for the CBT will be generally in conformity with the educational standards prescribed for the posts. The examination duration will be 120 minutes for candidates who are eligible for use of a scribe.

The Questions will be of objective type with multiple choices and are likely to include questions pertaining to:

a **Mathematics**: Number System, Decimals, Fractions, LCM, HCF, Ratio and Proportions, Percentage, Mensuration, Time and Work, Time and Distance, Simple and Compound Interest, Profit and Loss, Elementary Algebra, Geometry and Trigonometry, Elementary Statistics etc.

b **General Intelligence and Reasoning:** Analogies, Completion of Number and Alphabetical Series, Coding and Decoding, Mathematical Operations, Similarities and Differences, Relationships, Analytical Reasoning, Syllogism, Jumbling, Venn Diagrams, Puzzle, Data Sufficiency, Statement- Conclusion, Statement- Courses of Action, Decision Making, Maps, Interpretation of Graphs etc.

c **General Awareness:** Current Events of National and International Importance, Games and Sports, Art and Culture of India, Indian Literature, Monuments and Places of India, General Science and Life Science (up to 10th CBSE), History of India and Freedom Struggle, Physical, Social and Economic Geography of India and World, Indian Polity and Governance-constitution and political system, General Scientific and Technological Developments including Space and Nuclear Program of India, UN and Other important World Organizations, Environmental Issues Concerning India and World at Large, Basics of Computers and Computer Applications, Common Abbreviations, Transport Systems in India, Indian Economy, Famous Personalities of India and World, Flagship Government Programs, Flora and Fauna of India, Important Government and Public Sector Organizations of India etc.

Computer Based Typing Skill Test (CBTST):

For the posts of Junior Clerk cum Typist and Accounts Clerk cum Typist, Computer Based Typing Skill Test (CBTST) of qualifying nature (marks obtained in typing skill test shall not be added for making merit) shall be conducted for which the number of candidates equal to eight times the number of vacancies for each of the community shall be called for. The candidates should be able to type 30 words per minute (WPM) in English or 25 WPM in Hindi on Personal Computer only without editing tools and spell check facility. For guidelines of those who appear for typing skill test in Hindi, Kruti Dev and Mangal font shall be made available for typing skill test on Personal Computer. Exemption in Typing Skill Test may be extended to candidates who are permanently disabled due to Blindness/Low Vision, Cerebral Palsy & Loco Motor Disability with not less than 40% permanent disability. Such eligible PwBD candidates have to upload a scanned copy of Typing Skill Test Exemption Certificate issued by the Competent Medical Board in the website of respective RRBs before conduct of typing skill test in the format at Annexure G. The merit will be drawn only for the candidates qualified in the CBTST or CBTST exempted PwBD candidates based on performance in CBT.

The summary of the various stages of recruitment process detailed as above for the notified posts are tabulated below:

Sl. No.	Name of the Post	Level in 7th CPC	CBT	Skill Test Requirement
1	Commercial Clerk cum Ticket Clerk and	3	Common for all Posts	—
2	Accounts Clerk cum Typist	2	Common for all Posts	Computer Based Typing Skill Test
3	Junior Clerk cum Typist	2	Common for all Posts	Computer Based Typing Skill Test

(vi) Nursing Superintendent Post:

The recruitment process shall comprise of a Computer Based Test (CBT) followed by Document Verification and Medical Examination.

a. The Question paper for Single Stage CBT will be of 90 minutes duration for 100 questions and 120 minutes for PwBD candidates who are availing the Scribe facility.

b. The question papers shall be of objective multiple choice type with four options. Only one of these four options will be the correct answer.

c. The standard of questions for the Single Stage CBT (Computer Based Test) will be generally in conformity with the educational standards and/or minimum professional/technical qualifications prescribed for the posts. The questions will be of objective type with multiple choice and are likely to include questions pertaining to Professional ability, General awareness, Arithmetic, General Intelligence & Reasoning, and General Science.

Post	Syllabus
Nursing Superintendent	Anatomy, Physiology, Nutrition, Biochemistry, Nursing Foundations, Psychology, Microbiology, Sociology, Pharmacology, Pathology, Genetics, Medical-Surgical Nursing , (Adult including Geriatrics)-I, Community Health Nursing, Child Health Nursing, Mental Health Nursing, Midwifery and Obstetrical Nursing, Nursing Research & Statistics, Management of Nursing Services and Education

Sl. No	Subject	Syllabus
1	General Arithmetics	Number systems, BODMAS, Decimals, Fractions, LCM and HCF, Ratio and Proportion, Percentages, Mensuration, Time and Work, Time and Distance, Simple and Compound Interest, Profit and Loss, Algebra, Geometry, Trigonometry, Elementary Statistics, Square Root, Age Calculations, Calendar & Clock, Pipes & Cistern
2	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.
3	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.
4	General Science	Physics, Chemistry and Life Sciences (up to 10th Standard CBSE syllabus).

Section-wise marks: The section wise number of questions and marks are detailed below:

Exam Duration in Minutes	No. of Questions (each of 1 mark) from				Total No. of Questions
90	Professional ability	General Awareness	General Arithmetic, General Intelligence and reasoning	General science	
	70	10	10	10	100