

Exam Pattern — CBT-1 & CBT-2 (At a glance)

CBT-1 (Screening) — Objective

Subject	No. of Questions	Marks	Duration
Mathematics	~30	30	90 minutes (General)
General Intelligence & Reasoning	~25	25	
General Awareness	~15	15	
General Science	~30	30	
Total	100	100	90 minutes

CBT-2 — Main (Marks counted for final merit)

Section	No. of Qs	Marks
General Awareness	15	15
Physics & Chemistry	15	15
Basics of Computers & Applications	10	10
Basics of Environment & Pollution Control	10	10
Technical Abilities (Post specific)	100	100
Total	150	150

Note: CBT-2 technical section is the most important for final selection. Prepare your discipline topics thoroughly.

Subject-Wise Syllabus — Detailed

Mathematics (CBT-1)

- Number Systems — natural numbers, integers, rational numbers, decimal numbers, fractions.
- HCF & LCM, Divisibility rules, Simplification (BODMAS), Approximation.
- Percentages, Ratio & Proportion, Partnership.
- Simple & Compound Interest, Profit & Loss.
- Algebra — basic operations, linear equations.
- Geometry & Mensuration — area, surface area, volume of common shapes.
- Trigonometry — basic trigonometric ratios, heights & distances.
- Time & Work, Time & Distance, Pipes & Cisterns, Boats & Streams.
- Elementary Statistics — mean, median, mode, data interpretation.

- Square Roots, Ages, Calendar & Clock problems.

General Intelligence & Reasoning (CBT-1)

- Analogies, Classification, Series (number & alphabet).
- Coding-Decoding, Blood relations, Direction sense, Order & ranking.
- Syllogism, Venn diagrams, Statements & conclusions.
- Seating arrangements, Puzzles, Mathematical operations in reasoning context.
- Data sufficiency, Logical sequence of words, Input-output.

General Awareness (CBT-1 & CBT-2)

- Current Affairs — last 12 months (national & international).
- Important events: government schemes, awards, sports, major appointments.
- Indian History: ancient, medieval, modern (freedom struggle highlights).
- Indian Geography: physical, political, river systems, climate, agriculture.
- Polity & Constitution — fundamentals, important amendments, central/state structure.
- Economy basics — budget terms, banking, inflation, RBI basics.
- Environment & Ecology — biodiversity, conservation, pollution, climate change basics.

General Science (CBT-1)

CBT-1 science will be around high-school (up to class 10) level and includes:

- Physics basics — motion, force, energy, light, sound, electricity basics.
- Chemistry basics — atoms, molecules, acids & bases, common reactions.
- Biology / Life sciences — human body basics, plants, diseases, nutrition.

Physics & Chemistry (CBT-2)

More focused than CBT-1 — expect class 10–12 level conceptual and application questions:

- Mechanics, Thermodynamics basics.
- Optics, Electrostatics, Current Electricity.
- Periodic table, chemical bonding, reaction types, metallurgy basics.

Basics of Computers & Applications (CBT-2)

- Computer fundamentals — hardware & software.
- Operating systems basics, MS Office (Word, Excel, PowerPoint).
- Basic networking, Internet, email & browsers.
- Data storage, representation, virus & security basics.

Basics of Environment & Pollution Control (CBT-2)

- Types of pollution (air, water, soil, noise) and control measures.
- Waste management (solid, liquid, hazardous) & recycling basics.
- Climate change basics, greenhouse gases, global warming, ozone depletion.
- Environmental acts & policies — basic awareness.

Technical Abilities — Stream / Post Specific (CBT-2)

Important: Technical syllabus differs by engineering discipline. Below are the commonly tested topics. Use your branch core textbooks and previous year papers for deep practice.

Mechanical Engineering

- Engineering Mechanics, Strength of Materials, Theory of Machines.
- Thermodynamics, Internal Combustion Engines, Refrigeration & Air-conditioning.
- Fluid Mechanics & Machinery, Hydraulic Machines.
- Machine Design, Manufacturing Processes — machining, forming, welding.
- Metrology & Inspection, Material Science, CAD/CAM basics.
- Industrial Engineering, Maintenance Engineering, Pump & Compressor basics.

Civil Engineering

- Building Materials & Construction, Surveying, Strength of Materials.
- Concrete Technology, Structural Analysis, RCC & Steel Structures.
- Hydraulics & Water Resources Engineering, Environmental Engineering.
- Geotechnical Engineering, Transportation Engineering, Estimating & Costing.
- Contracts & Specifications, Soil Mechanics, Foundations.

Electrical Engineering

- Basic Circuit Theory, Network Theorems, AC Fundamentals.
- Electrical Machines — Transformers, DC & AC machines.
- Power Systems — generation, transmission, distribution basics.
- Measurements & Instrumentation, Power Electronics basics.
- Control Systems basics, Switchgear & Protection fundamentals.

Electronics & Telecommunication

- Electronic Devices & Circuits, Analog & Digital Electronics.
- Linear Integrated Circuits, Amplifiers, Oscillators.
- Microprocessors & Microcontrollers basics, Embedded systems.
- Data Communication, Modulation techniques, Antennas & Transmission lines.

- Signal Processing basics, ADC/DAC, Filters.

Chemical / Metallurgy (CMA)

- Basic chemical engineering principles, unit operations & processes.
- Metallurgical processes, extraction, thermal treatments, material properties.
- Process instrumentation, reaction engineering (basics).

Tip: For Technical Abilities, solve previous year technical questions for your stream and focus on application-based numerical & conceptual problems.

Preparation Strategy & Study Plan

1. **Understand the syllabus first:** Mark which topics are heavy in technical section for your branch.
2. **Create a 90-day plan:** Divide time between CBT-1 basics (Maths, Reasoning) and CBT-2 technical deep study.
3. **Mock tests & Previous Year Papers:** Start with topic tests, then sectional mocks, and finally full-length tests.
4. **Revision notes:** Make one-page formula sheets for maths, important concepts for technical subjects, and current affairs highlights.
5. **Time management:** Practice speed with accuracy — negative marking penalizes guessing.
6. **Peer groups:** Join Telegram/WhatsApp groups (e.g., [Telegram](#)) for doubt clearing & daily updates.
7. **Health & routine:** Keep a daily routine, sleep well and include short breaks for high retention.

A focused, consistent plan with regular testing gives the best chance to clear RRB JE.