



ACE[®]
Engineering Academy
Leading Institute for ESE/GATE/PSUs



Railway Recruitment Boards Junior Engineer-2025 CBT-II

Online Test Series

Electrical and Allied Engineering - Schedule

No.of Tests : 20	
Subject wise Tests	16
Full Length Mock Tests	4

Note:

- ★ The syllabus is considered as per the notifications of the RRB. ACE Engineering Academy does not take responsibility for any changes or deviations in the final RRB-JE-2025 CBT-II examination syllabus. As per the RRB-JE-2025 notification, each question carries '1' mark, and there is negative marking of 1/3rd (i.e., 0.33 marks) for each wrong answer.
- ★ The test dates may change depending on the RRB-JE-2025 CBT-II examination schedule.
- ★ Tests will be activated at 6:00 PM on the scheduled day.
- ★ All tests will remain active until the RRB-JE-2025 CBT-II examination.
- ★ The test series is available only in English medium.

Subject-wise Tests

(No. of Questions: 40, Time duration: 32 Minutes and Max Marks: 40 M)

Test No	Name of the Test	Date of Activation
Test-01	General Awareness	01-04-2026
Test-02	Basic concepts + Circuit law	02-04-2026
Test-03	Magnetic Circuit	04-04-2026
Test-04	Physics & Chemistry	05-04-2026
Test-05	AC Fundamentals	07-04-2026
Test-06	Electrical Machines	08-04-2026
Test-07	Basics of Computers and Applications	10-04-2026
Test-08	Measurement and Measuring Instruments	11-04-2026
Test-09	Generation & Protection	13-04-2026
Test-10	Basics of Environment and Pollution Control	14-04-2026
Test-11	Transmission, Distribution & Faults	16-04-2026
Test-12	Synchronous Machines	17-04-2026
Test-13	General Awareness + Basics of Environment and Pollution Control	19-04-2026
Test-14	Basic Electronics	20-04-2026
Test-15	Estimation and costing & Utilization of Electrical Energy	22-04-2026
Test-16	Physics & Chemistry + Basics of Computers and Applications	23-04-2026

Full Length Mock Test Series

(No. of Questions: 150, Time duration: 120 Minutes and Max Marks: 150)

Test-17	Full Length Mock Test-01	30-04-2026
Test-18	Full Length Mock Test-02	04-05-2026
Test-19	Full Length Mock Test-03	08-05-2026
Test-20	Full Length Mock Test-04	12-05-2026

Syllabus for CBT-II

Electrical and Allied Engineering

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

Subjects	STAGE-II (CBT-II)	
	No. of Questions	Marks for each Section
General Awareness	15	15
Physics & Chemistry	15	15
Basics 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.

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.
Physics and Chemistry	Up to 10th standard CBSE syllabus.
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
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.

Technical Abilities

Basic concepts	Concepts of resistance, inductance, capacitance, and various factors affecting them. Concepts of current, voltage, power, energy and their units.
Circuit law	Kirchhoff's law, Simple Circuit solution using network theorems.
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.
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.
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.
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.
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.
Generation & Protection	Different types of power stations, Load factor, diversity factor, demand factor, cost of generation, inter-connection of power stations. 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.
Transmission, Distribution & Faults	Various transmission and distribution system, comparison of conductor materials, efficiency of different system. Power factor improvement, various types of tariffs, Cable – Different type of cables, cable rating and derating factor. Types of faults, short circuit current for symmetrical faults.
Estimation and costing	Estimation of lighting scheme, electric installation of machines and relevant IE rules. Earthing practices and IE Rules.
Utilization of Electrical Energy	Illumination, Electric heating, Electric welding, Electroplating, Electric drives and motors.
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.