

SSC JE 2026

Paper 2 — Syllabus & Exam Pattern

Paper 2 is the technical, discipline-specific stage of the SSC JE examination, taken only by candidates who qualify Paper 1. It is purely subject-based and its normalized marks decide the final merit list.

1. SSC JE Paper 2 — Exam Pattern

Paper	Questions	Marks	Duration
Relevant Technical Subject (Part A to Part G, as applicable)	100	300	2 hrs (2 hrs 40 min for scribe-eligible candidates)

Mode: Computer-Based Examination (CBE), objective type, in English & Hindi. **Negative Marking:** 1 mark deducted per wrong answer. **Nature:** Only Paper 2's normalized score determines the final merit list — Paper 1 is merely qualifying. Candidates attempt the same technical part/stream (A–G) they opted for at the application stage; standard of questions is approximately Diploma level for Civil, Mechanical & Electrical, and approximately graduation level for CS/IT, Electronics & Telecom, Physics, and Telecommunication Engineering.

2. Streams Covered (Part A – Part G)

Candidates attempt only the part corresponding to their post and educational qualification. Detailed subject-wise topics for the three core engineering streams — Civil & Structural, Electrical, and Mechanical — are given below (Sections 3–5); Computer Science & IT, Electronics & Telecom, Physics, and Telecommunication Engineering carry the same subject titles as listed in Paper 1 but are tested at greater depth.

3. Part A — Civil & Structural Engineering

Building Materials

Physical and chemical properties, classification, standard tests, uses, and manufacture/quarrying of materials — building stones, silicate-based materials, cement (Portland), asbestos products, timber and wood-based products, laminates, bituminous materials, paints, varnishes.

Estimating, Costing and Valuation

Estimate, glossary of technical terms, analysis of rates, methods and unit of measurement; items of work — earthwork, brick work, RCC work, shuttering, timber work, painting, flooring, plastering, boundary wall, water tank, septic tank, bar bending schedule; centre-line method, mid-section formula, trapezoidal formula, Simpson's rule; valuation — value and cost, scrap value, salvage value, sinking fund, depreciation, methods of valuation.

Surveying

Principles of surveying, chain surveying, prismatic compass, compass traversing, bearings, local attraction, plane table surveying, theodolite traversing, levelling, contouring, curvature and refraction corrections, tachometric survey, curve setting, earthwork calculation, advanced surveying equipment.

Soil Mechanics

Origin of soil, phase diagram, void ratio, porosity, degree of saturation, water content, specific gravity, unit weights; grain size distribution, Atterberg's limits, IS classification; permeability, effective stress, consolidation, e-log p curve; shear strength — direct shear, vane shear, triaxial test; compaction; earth pressure theories; bearing capacity — plate load test, SPT.

Hydraulics

Fluid properties, hydrostatics, measurement of flow, Bernoulli's theorem and applications, flow through pipes, flow in open channels, weirs, flumes, spillways, pumps, and turbines.

Irrigation Engineering

Types and methods of irrigation; hydrology — rainfall measurement, runoff coefficient, losses from precipitation; water requirement of crops, duty, delta, base period; canals and canal lining; wells; weirs and barrages; Kennedy's and Lacey's theories; floods and flood control; waterlogging and land reclamation; major irrigation projects in India.

Transportation Engineering

Highway Engineering — cross-sectional elements, geometric design, pavement types and materials, WBM/WMM, flexible and rigid pavement design, highway drainage; Railway Engineering — permanent way components, track geometry, points and crossings; Traffic Engineering — traffic surveys, speed-flow-density, intersections, signals, signs and markings, road safety.

Environmental Engineering

Water quality, sources and purification of water, distribution systems; sanitation and sewerage systems, sewer appurtenances, sewage treatment; surface water drainage; solid waste management; air and noise pollution — causes, effects, control.

Structural Engineering

Theory of Structures

Elasticity constants; determinate and indeterminate beams; bending moment and shear force diagrams for simply supported, cantilever and overhanging beams; moment of area and moment of inertia; bending and shear stress for tee, channel and compound sections; chimneys, dams and retaining walls; eccentric loads; slope deflection; critical load and columns; torsion of circular sections.

Concrete Technology

Properties, advantages and uses of concrete; cement and aggregates; water-cement ratio, workability, mix design; batching, mixing, placement, compaction, finishing and curing; quality control; hot- and cold-weather concreting; repair and maintenance of concrete structures.

RCC Design

Flexural, shear and bond strength; design of singly and doubly reinforced beams, cantilever beams, T-beams, lintels; one-way and two-way slabs; isolated footings; reinforced brick work, columns, staircases, retaining walls, water tanks (Limit State and Working Stress methods).

Steel Design

Design and construction of steel columns, beams, roof trusses, and plate girders.

4. Part B — Electrical Engineering

Basic Concepts

Resistance, inductance, capacitance and factors affecting them; current, voltage, power, energy and their units.

Circuit Law

Kirchhoff's laws; simple circuit solution using network theorems.

Magnetic Circuit

Flux, mmf, reluctance; magnetic materials; magnetic calculations for conductors of different configurations (straight, circular, solenoidal); electromagnetic induction, self and mutual induction.

A.C. Fundamentals

Instantaneous, peak, RMS and average values; sinusoidal waveform representation; series and parallel RLC circuits; resonance, tank circuit; polyphase systems — star/delta connection, 3-phase power; DC and sinusoidal response of R-L and R-C circuits.

Measurement & Measuring Instruments

Power (1-phase & 3-phase) and energy measurement, two-wattmeter method; frequency and phase angle measurement; ammeters and voltmeters (moving coil/moving iron); wattmeter range extension; multimeters, megger,

energy meter; AC bridges; CRO, signal generator, CT, PT; earth fault detection.

Electrical Machines

DC machines — construction, principles, characteristics, speed control, starting, braking, losses and efficiency; 1-phase & 3-phase transformers — construction, OC/SC tests, regulation, parallel operation, auto-transformers; 3-phase induction motors — rotating magnetic field, torque-speed characteristics, starting and speed control; fractional-kW motors and single-phase induction motors.

Synchronous Machines

Generation of 3-phase EMF, armature reaction, voltage regulation, parallel operation and synchronizing, control of active/reactive power; starting and applications of synchronous motors.

Generation, Transmission & Distribution

Types of power stations; load, diversity and demand factors; cost of generation; power factor improvement; tariffs; types of faults, short-circuit current; switchgear, circuit breakers, arc extinction, HRC fuses; earth leakage/overcurrent protection; Buchholz relay, Merz-Price protection; lightning arresters; transmission/distribution systems; cable types and ratings.

Estimation & Costing

Estimation of lighting schemes, electrical 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

PN junction diodes; transistors (NPN and PNP), BJT and JFET; simple circuits using these devices.

5. Part C — Mechanical Engineering

Theory of Machines & Machine Design

Simple machines; four-bar linkage and link motion; flywheels and fluctuation of energy; power transmission by V-belts and flat belts; clutches (plate and conical); gears — types, profile, gear ratio; governors; riveted joints; cams; bearings; friction in collars and pivots.

Engineering Mechanics & Strength of Materials

Equilibrium of forces, laws of motion, friction; stress and strain, elastic limit and elastic constants; bending moment and shear force diagrams; stress in composite bars; torsion of circular shafts; buckling of columns (Euler's and Rankine's theories); thin-walled pressure vessels.

Thermal Engineering — Properties of Pure Substances

P-V and P-T diagrams of H₂O; steam tables, saturation, wet and superheated states; dryness fraction, degree of superheat; Mollier (h-s) chart.

Thermal Engineering — Laws of Thermodynamics

1st Law — stored/internal energy, cyclic process, non-flow and steady-flow energy equations, enthalpy; 2nd Law — heat engine, heat pump, refrigerator, thermal efficiency and COP, Kelvin-Planck and Clausius statements, entropy, Carnot cycle and efficiency, PMM-2.

Thermal Engineering — IC Engines & Cycles

Otto and Diesel cycles (P-V, T-S plots, thermal efficiency); IC engine performance, combustion, cooling and lubrication; Rankine cycle of steam; boilers — classification, fittings and accessories (fire tube & water tube); air compressors and their cycles; refrigeration cycles and plant principles; nozzles and steam turbines.

Fluid Mechanics & Hydraulic Machinery

Fluid properties and classification, Newton's law of viscosity; fluid statics, pressure measurement (manometers); fluid kinematics — streamline, laminar/turbulent flow, continuity equation; dynamics of ideal fluids — Bernoulli's equation; flow-rate measurement — venturi meter, pitot tube, orifice meter; hydraulic turbines and centrifugal pumps —

classification, principles, performance.

Production Engineering

Classification of steels (mild/alloy) and heat treatment; welding — arc, gas, resistance, TIG/MIG, brazing/soldering, welding defects and NDT; foundry and casting methods and defects; forging, extrusion; metal cutting principles and cutting tools; machining basics — lathe, milling, drilling, shaping, grinding; machine tools and manufacturing processes.

6. Other Technical Streams (Part D – Part G)

For Computer Science & Information Technology, Electronics & Telecommunication Engineering, Physics, and Telecommunication Engineering, Paper 2 tests the same subject areas listed for Paper 1 (Engineering Mathematics, Digital Logic, Data Structures, Networks, Signals & Systems, Communications, Modern/Solid State Physics, etc.), but at approximately graduation level with more numerical and applied questions. Refer to the official SSC JE 2026 notification for the exact topic-wise breakup of these streams.

Note: Compiled from the SSC JE 2026 official notification and reputable coaching-institute syllabus summaries for reference. Always cross-check the exact, authoritative topic list against the official SSC JE 2026 notification at ssc.gov.in.