GATE-2025

Online Test Series

Instrumentation Engineering Schedule

No.of Tests : 54 + 54 *free* practice tests of GATE-2024 Online Test Series

	GATE - 2025 Test Series	Practice Tests GATE - 2024 OTS
Topic wise Tests	25	25
Grand Tests (Subject Wise Tests + Multi-Subject Wise Tests)	17	17
Full Length Mock Tests	12	12
Total Tests - 108		

Note:

★ The Syllabus considered as per Previoues year Notification of GATE. ACE Engineering Academy does not take any responsibility for deviations in syllabus in the final exam.

★ The Dates of Tests may Change according to the GATE-2025 Exam schedule.

★ Tests will be activated at 06:00 pm on the scheduled day.

★ All tests will be active till GATE-2025 Exam.

Topic wise Tests

(No.of Questions: 15, Time duration: 42 Minutes and Marks: 25 M)

Test No	Name of the Test	Date of Activation
Test-01	**Engineering Mathematics-1:** Linear Algebra: Matrix algebra, systems of linear equations, consistency and rank, Eigen values and Eigen vectors. Calculus: Mean value theorems, theorems of integral calculus, partial derivatives, maxima and minima, multiple integrals, Fourier series, vector identities, line, surface and volume integrals, Stokes, Gauss and Green's theorems. Differential equations: First order equation (linear and nonlinear), second order linear differential equations with constant coefficients, method of variation of parameters, Cauchy's and Euler's equations, initial and boundary value problems, solution of partial differential equations: variable separable method.	15-04-2024
Test-02	**Engineering Mathematics-2:** Analysis of complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent's series, residue theorem, solution of integrals. Probability and Statistics: Sampling theorems, conditional probability, mean, median, mode, standard deviation and variance; random variables: discrete and continuous distributions: normal, Poisson and binomial distributions. Numerical Methods: Matrix inversion, solutions of non-linear algebraic equations, iterative methods for solving differential equations, numerical integration, regression and correlation analysis.	
Test-03	**Control Systems-1:** Feedback principles, signal flow graphs, transient response, steady-state-errors, Routh criteria, root loci.	22-04-2024
Test-04	**Control Systems-2:** Bode plot, phase and gain margins, Nyquist criteria, design of lead, lag and lead-lag compensators, state-space representation of systems; time-delay systems; mechanical, hydraulic and pneumatic system components, synchro pair, servo and stepper motors, servo valves; on-off, P, P-I, P-I-D, cascade, feed forward, and ratio controllers,tuning of PID controllers and sizing of control valves.	
Test-05	**Signals and Systems-1:** Periodic, aperiodic and impulse signals; Fourier transform. transfer function, frequency response of first and second order linear time invariant systems, impulse response of systems; convolution, correlation.	
Test-06	**Signals and Systems-2:** Laplace,and z-transforms; Discrete time system: impulse response, frequency response, pulse transfer function; DFT and FFT; basics of IIR and FIR filters.	

Test No	Name of the Test	Date of Activation
Test-07	**Electrical Circuits and Machines-1:** Voltage and current sources: independent, dependent, ideal and practical; v-i relationships of resistor, inductor, mutual inductor and capacitor; transient analysis of RLC circuits with dc excitation. Kirchoff's laws, mesh and nodal analysis, superposition, Thevenin, Norton, maximum power transfer and reciprocity theorems.	29-04-2024
Test-08	**Electrical Circuits and Machines-2:** Peak-, average- and rms values of ac quantities; apparent-, active- and reactive powers; phasor analysis, impedance and admittance; series and parallel resonance, locus diagrams, realization of basic filters with R, L and C elements.transient analysis of RLC circuits with ac excitation. One-port and two-port networks, driving point impedance and admittance, open-, and short circuit parameters.	
Test-09	**Electrical Circuits and Machines-3 :** Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase induction motors: principle of operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control; Types of losses and efficiency calculations of electric machines.	06-05-2024
Test-10	**Digital Electronics-1:** Combinational logic circuits, minimization of Boolean functions. Arithmetic circuits, comparators. multiplexer, basics of number systems.	
Test-11	**Digital Electronics-2:** Sample-and-hold circuit, analog-to- digital (successive approximation, integrating, flash and sigma-delta) and digital-to- analog converters (weighted R, R-2R ladder and current steering logic). Characteristics of ADC and DAC (resolution, quantization, significant bits, conversion/settling time); sequential circuits, flip- flops, shift registers, timers and counters; IC families: TTL and CMOS. Schmitt trigger, multi-vibrators.	
Test-12	**Digital Electronics-3:** 8-bit microprocessor and microcontroller: applications, memory and input-output interfacing; basics of data acquisition systems, basics of distributed control systems (DCS) and programmable logic controllers (PLC).	
Test-13	**Analog Electronics-1:** Characteristics and applications of diode, Zener diode, BJT and MOSFET; small signal analysis of transistor circuits, feedback amplifiers.	13-05-2024
Test-14	**Analog Electronics-2:** Characteristics of operational amplifiers; applications of op amps: difference amplifier, adder, subtractor, integrator, differentiator, instrumentation amplifier, precision rectifier, active filters and other circuits. Oscillators, signal generators, voltage controlled oscillators and phase locked loop,sources and effects of noise and interference in electronic circuits.	

Test No	Name of the Test	Date of Activation
Test-15	**Electricity and Magnetism:** Coulomb's Law, Electric Field Intensity, Electric Flux Density, Gauss's Law, Divergence, Electric field and potential due to point, line, plane and spherical charge distributions, Effect of dielectric medium, Capacitance of simple configurations, Biot-Savart's law, Ampere's law, Curl, Faraday's law, Lorentz force, Inductance, Magnetomotive force, Reluctance, Magnetic circuits, Self and Mutual inductance of simple configurations.	20-05-2024
Test-16	**Sensors and Industrial Instrumentation-1:** Resistive-, capacitive-, inductive-, piezoelectric-, Hall effect sensors and associated signal conditioning circuits; transducers for industrial instrumentation: displacement (linear and angular), velocity, acceleration, force, torque, vibration, shock, pressure (including low pressure).	
Test-17	**Sensors and Industrial Instrumentation-2:** Flow (differential pressure, variable area, electromagnetic, ultrasonic, turbine and open channel flow meters)	
Test-18	**Sensors and Industrial Instrumentation-3:** Temperature (thermocouple, bolometer, RTD (3/4 wire), thermistor, pyrometer and semiconductor); liquid level, pH, conductivity and viscosity measurement. 4-20 mA two-wire transmitter.	
Test-19	**Communication and Optical instrumentation-1:** Amplitude- and frequency modulation and demodulation; Shannon's sampling theorem, pulse code modulation; frequency and time division multiplexing, amplitude-, phase-, frequency-,quadrature amplitude, pulse shift keying for digital modulation.	27-05-2024
Test-20	**Communication and Optical instrumentation-2:** Optical sources and detectors: LED, laser, photo-diode, light dependent resistor,square law detectors and their characteristics; interferometer: applications in metrology; basics of fiber optic sensing,UV-VIS Spectro photometers, Mass spectrometer.	
Test-21	**Measurements-1:** SI units,standards (R,L,C, voltage, current and frequency), systematic and random errors in measurement, expression of uncertainty - accuracy and precision index, propagation of errors,linear and weighted regression. ; Bridges: Wheatstone, Kelvin, Megohm, Maxwell, Anderson, Schering and Wien for measurement of R, L, C and frequency, Q-meter.	03-06-2024
Test-22	**Measurements-2:** Measurement of voltage, current and power in single and three phase circuits; ac and dc current probes; true rms meters, voltage and current scaling, instrument transformers, timer/counter, time, phase and frequency measurements, digital voltmeter, digital multimeter; oscilloscope, shielding and grounding.	

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Test No	Name of the Test	Date of Activation
Test-23	**Verbal Ability:** Basic English grammar: tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: words, idioms, and phrases in context. Reading and comprehension. Narrative sequencing.	10-06-2024
Test-24	**Quantitative Aptitude:** Data interpretation: data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables. Numerical computation and estimation: ratios, percentages, powers, exponents and logarithms, permutations and combinations, and series Mensuration and geometry. Elementary statistics and probability.	
Test-25	**Analytical Aptitude:** Logic: deduction and induction, Analogy, Numerical relations and reasoning **Spatial Aptitude:** Transformation of shapes: translation, rotation, scaling, mirroring, assembling, and grouping Paper folding, cutting, and patterns in 2 and 3 dimensions	

Subject Wise Grand Tests
(No.of Questions: 30, Time duration: 83 Minutes and Marks: 50 M)

Test No	Name of the Test	Date of Activation
Test-26	Engineering Mathematics	24-06-2024
Test-27	Control Systems	
Test-28	Signals and Systems	01-07-2024
Test-29	Digital Electronics	
Test-30	Electrical Circuits and Machines	08-07-2024
Test-31	Sensors & Industrial Instrumentation	
Test-32	Analog Electronics	15-07-2024
Test-33	Communication & Optical instrumentation	
Test-34	Electricity and Magnetism	22-07-2024
Test-35	Measurements	
Test-36	General Aptitude	29-07-2024

Test No	Name of the Test	Date of Activation
	Full Length Mock Test - 1ˢᵗ Series *(No.of Questions: 65, Time duration: 180 Minutes and Marks: 100 M)*	
Test-37	Full Length Mock Test-1	12-08-2024
Test-38	Full Length Mock Test-2	19-08-2024
Test-39	Full Length Mock Test-3	26-08-2024
Test-40	Full Length Mock Test-4	02-09-2024
Test-41	Full Length Mock Test-5	09-09-2024
Test-42	Full Length Mock Test-6	16-09-2024

Test No	Name of the Test	Date of Activation
	Multi-Subject Wise Grand Tests *(No.of Questions: 30, Time duration: 83 Minutes and Marks: 50 M)*	
Test-43	Electrical Circuits and Machines and Electricity and Magnetism	30-09-2024
Test-44	Control Systems and Signals and Systems	
Test-45	Communication and Optical Instrumentation	07-10-2024
Test-46	Sensors and Industrial Instrumentation and Digital Electronics	
Test-47	Measurements & Analog Electronics	14-10-2024
Test-48	Engineering Mathematics & General Aptitude	

Test No	Name of the Test	Date of Activation
	Full Length Mock Test -2ⁿᵈ Series *(No.of Questions: 65, Time duration: 180 Minutes and Marks: 100 M)*	
Test-49	Full Length Mock Test-7	04-11-2024
Test-50	Full Length Mock Test-8	11-11-2024
Test-51	Full Length Mock Test-9	18-11-2024
Test-52	Full Length Mock Test-10	25-11-2024
Test-53	Full Length Mock Test-11	30-12-2024
Test-54	Full Length Mock Test-12	06-01-2025

Free Practice Tests

Topic wise Tests

(No.of Questions: 15, Time duration: 42 Minutes and Marks: 25 M)

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Test-01	**Engineering Mathematics-1:** Linear Algebra: Matrix algebra, systems of linear equations, consistency and rank, Eigen values and Eigen vectors. Calculus: Mean value theorems, theorems of integral calculus, partial derivatives, maxima and minima, multiple integrals, Fourier series, vector identities, line, surface and volume integrals, Stokes, Gauss and Green's theorems. Differential equations: First order equation (linear and nonlinear), second order linear differential equations with constant coefficients, method of variation of parameters, Cauchy's and Euler's equations, initial and boundary value problems, solution of partial differential equations: variable separable method.	
Test-02	**Engineering Mathematics-2:** Analysis of complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent's series, residue theorem, solution of integrals. Probability and Statistics: Sampling theorems, conditional probability, mean, median, mode, standard deviation and variance; random variables: discrete and continuous distributions: normal, Poisson and binomial distributions. Numerical Methods: Matrix inversion, solutions of non-linear algebraic equations, iterative methods for solving differential equations, numerical integration, regression and correlation analysis.	25-03-2024
Test-03	**Control Systems-1:** Feedback principles, signal flow graphs, transient response, steady-state-errors, Routh criteria, root loci.	
Test-04	**Control Systems-2:** Bode plot, phase and gain margins, Nyquist criteria, design of lead, lag and lead-lag compensators, state-space representation of systems; time-delay systems; mechanical, hydraulic and pneumatic system components, synchro pair, servo and stepper motors, servo valves; on-off, P, P-I, P-I-D, cascade, feed forward, and ratio controllers,tuning of PID controllers and sizing of control valves.	
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Test-27	Control Systems	
Test-28	Signals and Systems	
Test-29	Digital Electronics	
Test-30	Electrical Circuits and Machines	
Test-31	Sensors & Industrial Instrumentation	**01-04-2024**
Test-32	Analog Electronics	
Test-33	Communication & Optical instrumentation	
Test-34	Electricity and Magnetism	
Test-35	Measurements	
Test-36	General Aptitude	

Test No	Name of the Test	Date of Activation
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Test-37	Electrical Circuits and Machines and Electricity and Magnetism	01-04-2024
Test-38	Control Systems and Signals and Systems	
Test-39	Communication and Optical Instrumentation	
Test-40	Sensors and Industrial Instrumentation and Digital Electronics	
Test-41	Measurements & Analog Electronics	
Test-42	Engineering Mathematics & General Aptitude	

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Test-43	Full Length Mock Test-1	08-04-2024
Test-44	Full Length Mock Test-2	
Test-45	Full Length Mock Test-3	
Test-46	Full Length Mock Test-4	
Test-47	Full Length Mock Test-5	
Test-48	Full Length Mock Test-6	
Test-49	Full Length Mock Test-7	
Test-50	Full Length Mock Test-8	
Test-51	Full Length Mock Test-9	
Test-52	Full Length Mock Test-10	
Test-53	Full Length Mock Test-11	
Test-54	Full Length Mock Test-12	