GATE-2021 Online Test Series

Instrumentation Engineering - Schedule

No.of Test : 64 (24 Topic wise Tests + 28 Grand Tests + 12 Full Length Mock Tests)
+ *Free* 54 practice Tests of GATE-2020 Online Test Series

Topic wise Tests

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-01	**Engineering Mathematics-1:** Linear Algebra, Calculus, Differential Equations.	15	25	45 mins	03-06-2020
Test-02	**Engineering Mathematics-2:** Analysis of Complex Variables, Probability and Statistics and Numerical Methods.	15	25	45 mins	
Test-03	**Control Systems-1:** Feedback principles, signal flow graphs, transient response, steady-state-errors, Routh criteria, root loci.	15	25	45 mins	
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.	15	25	45 mins	
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.	15	25	45 mins	10-06-2020
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.	15	25	45 mins	
Test-07	**Digital Electronics-1:** Combinational logic circuits, minimization of Boolean functions.. Arithmetic circuits, comparators, Schmitt trigger, multi-vibrators. IC families: TTL and CMOS.	15	25	45 mins	
Test-08	**Digital Electronics-2:** Sample-and-hold circuit, multiplexer, 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); basics of number systems. sequential circuits, flip- flops, basics of number systems, , shift registers, timers and counters;	15	25	45 mins	
Test-09	**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).	15	25	45 mins	
Test-10	**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.	15	25	45 mins	17-06-2020
Test-11	**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.	15	25	45 mins	
Test-12	**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.				
Test-13	**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.				

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-14	**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).	15	25	45 mins	17-06-2020
Test-15	**Sensors and Industrial Instrumentation-2:** Flow (differential pressure, variable area, electromagnetic, ultrasonic, turbine and open channel flow meters)	15	25	45 mins	
Test-16	**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.	15	25	45 mins	
Test-17	**Analog Electronics-1:** Characteristics and applications of diode, Zener diode, BJT and MOSFET; small signal analysis of transistor circuits, feedback amplifiers.	15	25	45 mins	24-06-2020
Test-18	**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.	15	25	45 mins	
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.	15	25	45 mins	
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.	15	25	45 mins	
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.	15	25	45 mins	01-07-2020
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.	15	25	45 mins	
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	15	25	45 mins	
Test-24	**Numarical Ability:** 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. 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.	15	25	45 mins	

Subject Wise Grand Tests - 1st Series

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-25	Engineering Mathematics	30	50	90 mins	15-07-2020
Test-26	Control Systems	30	50	90 mins	
Test-27	Signals and Systems	30	50	90 mins	22-07-2020
Test-28	Digital Electronics	30	50	90 mins	
Test-29	Electrical Circuits and Machines	30	50	90 mins	29-07-2020
Test-30	Sensors & Industrial Instrumentation	30	50	90 mins	
Test-31	Analog Electronics	30	50	90 mins	05-08-2020
Test-32	Communication & Optical instrumentation	30	50	90 mins	
Test-33	Electricity and Magnetism	30	50	90 mins	11-08-2020
Test-34	Measurements	30	50	90 mins	
Test-35	General Aptitude	30	50	90 mins	

Full Length Mock GATE Test - 1st Series (As per GATE pattern)

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-36	Full Length GATE Mock Test-1	65	100	180 mins	19-08-2020
Test-37	Full Length GATE Mock Test-2	65	100	180 mins	26-08-2020
Test-38	Full Length GATE Mock Test-3	65	100	180 mins	02-09-2020

Subject Wise Grand Tests - 2nd Series

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-39	Engineering Mathematics	30	50	90 mins	09-09-2020
Test-40	Control Systems	30	50	90 mins	
Test-41	Signals and Systems	30	50	90 mins	16-09-2020
Test-42	Digital Electronics	30	50	90 mins	
Test-43	Electrical Circuits and Machines	30	50	90 mins	23-09-2020
Test-44	Sensors & Industrial Instrumentation	30	50	90 mins	
Test-45	Analog Electronics	30	50	90 mins	30-09-2020
Test-46	Communication & Optical instrumentation	30	50	90 mins	
Test-47	Electricity and Magnetism	30	50	90 mins	07-10-2020
Test-48	Measurements	30	50	90 mins	
Test-49	General Aptitude	30	50	90 mins	

Full Length Mock GATE Tests- 2nd Series

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-50	Full Length GATE Mock Test-4	65	100	180 mins	14-10-2020
Test-51	Full Length GATE Mock Test-5	65	100	180 mins	21-10-2020
Test-52	Full Length GATE Mock Test-6	65	100	180 mins	28-10-2020

Multi-Subject Wise Grand Tests

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-53	Electricity and Magnetism& Sensors and Industrial Instrumentation	30	50	90 mins	04-11-2020
Test-54	Control Systems & Signals and Systems	30	50	90 mins	
Test-55	Communication and Optical Instrumentation	30	50	90 mins	11-11-2020
Test-56	Electrical Circuits and Machines and Digital Electronics	30	50	90 mins	
Test-57	Measurements & Analog Electronics	30	50	90 mins	18-11-2020
Test-58	Engineering Mathematics & General Aptitude	30	50	90 mins	

Full Length Mock GATE Tests - 3rd Series

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
Test-59	Full Length GATE Mock Test-7	65	100	180 mins	02-12-2020
Test-60	Full Length GATE Mock Test-8	65	100	180 mins	09-12-2020
Test-61	Full Length GATE Mock Test-9	65	100	180 mins	04-01-2021
Test-62	Full Length GATE Mock Test-10	65	100	180 mins	11-01-2021
Test-63	Full Length GATE Mock Test-11	65	100	180 mins	18-01-2021
Test-64	Full Length GATE Mock Test-12	65	100	180 mins	25-01-2021

Free Practice Tests of GATE-2020 Online Test Series

Topic wise Tests

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
IN_P01	**Engineering Mathematics-1:** Linear Algebra, Calculus, Differential Equations.	15	25	45 mins	20-04-2020
IN_P02	**Engineering Mathematics-2:** Analysis of Complex Variables, Probability and Statistics and Numerical Methods.	15	25	45 mins	
IN_P03	**Control Systems-1:** Feedback principles, signal flow graphs, transient response, steady-state-errors, Routh criteria, root loci.	15	25	45 mins	
IN_P04	**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.	15	25	45 mins	
IN_P05	**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.	15	25	45 mins	
IN_P06	**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.	15	25	45 mins	
IN_P07	**Digital Electronics-1:** Combinational logic circuits, minimization of Boolean functions.. Arithmetic circuits, comparators, Schmitt trigger, multi-vibrators. IC families: TTL and CMOS.	15	25	45 mins	
IN_P08	**Digital Electronics-2:** Sample-and-hold circuit, multiplexer, 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); basics of number systems. sequential circuits, flip- flops, basics of number systems, , shift registers, timers and counters;	15	25	45 mins	
IN_P09	**Digital Electronics-3:** 8-bit microprocessor and microcontroller: applications, memory and input-output interfacing; basics of data acquisition systems.	15	25	45 mins	

IN_P10	**Electrical Circuits-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.	15	25	45 mins	20-04-2020
IN_P11	**Electrical Circuits-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.One-port and two-port networks, driving point impedance and admittance, open-, and short circuit parameters.	15	25	45 mins	
IN_P12	**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).	15	25	45 mins	
IN_P13	**Sensors and Industrial Instrumentation-2:** Flow (differential pressure, variable area, electromagnetic, ultrasonic, turbine and open channel flow meters)	15	25	45 mins	
IN_P14	**Sensors and Industrial Instrumentation-3:** Temperature (thermocouple, bolometer, RTD (3/4 wire), thermistor, pyrometer and semiconductor); liquid level, pH, conductivity and viscosity measurement.	15	25	45 mins	
IN_P15	**Analog Electronics-1:** Characteristics and applications of diode, Zener diode, BJT and MOSFET; small signal analysis of transistor circuits, feedback amplifiers.	15	25	45 mins	
IN_P16	**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.	15	25	45 mins	
IN_P17	**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-, pulse shift keying for digital modulation.	15	25	45 mins	
IN_P18	**Communication and Optical instrumentation-2:** Optical sources and detectors: LED, laser, photo-diode, light dependent resistor and their characteristics; interferometer: applications in metrology; basics of fiber optic sensing.	15	25	45 mins	
IN_P19	**Measurements-1:** SI units, systematic and random errors in measurement, expression of uncertainty - accuracy and precision index, propagation of errors. PMMC, MI and dynamometer type instruments; dc potentiometer; bridges for measurement of R, L and C, Q-meter.	15	25	45 mins	
IN_P20	**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.	15	25	45 mins	
IN_P21	**Verbal Ability:** English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.	15	25	45 mins	
IN_P22	**Numarical Ability:** Numerical computation, numerical estimation, numerical reasoning and data interpretation.	15	25	45 mins	

Subject Wise Grand Tests

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
IN_P23	Engineering Mathematics	30	50	90 mins	20-04-2020
IN_P24	Control Systems	30	50	90 mins	
IN_P25	Signals and Systems	30	50	90 mins	
IN_P26	Digital Electronics	30	50	90 mins	
IN_P27	Electrical Circuits	30	50	90 mins	
IN_P28	Sensors & Industrial Instrumentation	30	50	90 mins	
IN_P29	Analog Electronics	30	50	90 mins	
IN_P30	Communication & Optical instrumentation	30	50	90 mins	
IN_P31	Measurements	30	50	90 mins	
IN_P32	General Aptitude	30	50	90 mins	

Multi-Subject Wise Grand Tests

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
IN_P33	Electrical Circuits & Sensors and Industrial Instrumentation	30	50	90 mins	20-04-2020
IN_P34	Control Systems & Signals and Systems	30	50	90 mins	
IN_P35	Measurements & Analog Electronics	30	50	90 mins	
IN_P36	Sensors and Industrial Instrumentation & Digital Electronics	30	50	90 mins	
IN_P37	Engineering Mathematics & General Aptitude	30	50	90 mins	
IN_P38	Control Systems, Signals and Systems, Digital Electronics & Analog Electronics	30	50	90 mins	
IN_P39	Analog Electronics , Signals and Systems, Communication and Optical Instrumentation & Measurements	30	50	90 mins	
IN_P40	Communication & Optical Instrumentation & Measurements	30	50	90 mins	
IN_P41	Communication and Optical Instrumentation, Electrical circuits & Digital Electronics	30	50	90 mins	
IN_P42	Engineering Mathematics & General Aptitude	30	50	90 mins	

Full Length Mock GATE Tests

Test No	Name of the Topic	No. of Questions	Max Marks	Duration	Date of Activation
IN_P43	Full Length GATE Mock Test-1	65	100	180 mins	20-04-2020
IN_P44	Full Length GATE Mock Test-2	65	100	180 mins	
IN_P45	Full Length GATE Mock Test-3	65	100	180 mins	
IN_P46	Full Length GATE Mock Test-4	65	100	180 mins	
IN_P47	Full Length GATE Mock Test-5	65	100	180 mins	
IN_P48	Full Length GATE Mock Test-6	65	100	180 mins	
IN_P49	Full Length GATE Mock Test-7	65	100	180 mins	
IN_P50	Full Length GATE Mock Test-8	65	100	180 mins	
IN_P51	Full Length GATE Mock Test-9	65	100	180 mins	
IN_P52	Full Length GATE Mock Test-10	65	100	180 mins	
IN_P53	Full Length GATE Mock Test-11	65	100	180 mins	
IN_P54	Full Length GATE Mock Test-12	65	100	180 mins	