

### Topicwise Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Time	Activation Date
1	<b>Electric Circuits-1:</b> Network graph, KCL, KVL, Node and Mesh analysis, Ideal current and voltage sources; Sinusoidal steady-state analysis, Power and power factor in ac circuits; Thevenin's theorem, Norton's theorem, Superposition theorem, Maximum power transfer theorem.	17	25	45 min	Activated
2	<b>Electric Circuits-2:</b> Transient response of dc and ac networks, Resonance, Passive filters, Two-port networks.	17	25	45 min	
3	<b>Control Systems-1:</b> Mathematical modeling and representation of systems, Feedback principle, transfer function, Block diagrams and Signal flow graphs, Transient and Steady-state analysis of linear time invariant systems, Routh-Hurwitz, Root loci, Stability analysis.	17	25	45 min	
4	<b>Control Systems-2:</b> Frequency domain analysis, Nyquist criteria, Bode plots, Lag, Lead and Lead-Lag compensators; P, PI and PID controllers; State space model, State transition matrix.	17	25	45 min	
5	<b>Electrical Machines-1 :</b> Electromechanical energy conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, starting and speed control of dc motors; Synchronous machines: cylindrical and salient pole machines, performance, regulation and parallel operation of generators, starting of synchronous motor, characteristics; Types of losses and efficiency calculations of electric machines.	17	25	45 min	
6	<b>Electrical Machines-2 :</b> Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, parallel operation; Auto-transformer, Three phase induction motors: principle of operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control; Operating principle of single phase induction motors.	17	25	45 min	
7	<b>Power Systems-1 :</b> Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Voltage and Frequency control, Power factor correction, Principles of over-current, differential and distance protection; Circuit breakers.	17	25	45 min	
8	<b>Power Systems-2 :</b> Per-unit quantities, Bus admittance matrix, Gauss-Seidel and Newton-Raphson load flow methods, Symmetrical components, Symmetrical and unsymmetrical fault analysis, System stability concepts, Equal area criterion.	17	25	45 min	
9	<b>Engineering mathematics-1:</b> Linear Algebra, Calculus, Probability and Statistics.	17	25	45 min	
10	<b>Engineering mathematics-2:</b> Differential Equations, Complex Analysis, Numerical Methods, Transform Theory.	17	25	45 min	
11	<b>General Aptitude-1:</b> Numerical Ability: Numerical computation, numerical estimation, numerical reasoning and data interpretation.	17	25	45 min	
12	<b>General Aptitude-2:</b> Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.	17	25	45 min	
13	<b>Signals &amp; Systems-1 :</b> Representation of continuous and discrete-time signals, Shifting and scaling operations, Linear Time Invariant and Causal systems, Fourier series representation of continuous periodic signals.	17	25	45 min	Activated
14	<b>Signals &amp; Systems-2 :</b> Sampling theorem, Applications of Fourier Transform, Laplace Transform and z-Transform.	17	25	45 min	
15	<b>Power Electronics-1:</b> Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters.	17	25	45 min	
16	<b>Power Electronics-2:</b> DC to DC conversion: Buck, Boost and Buck-Boost converters; Single phase and three phase inverters, Sinusoidal pulse width modulation.	17	25	45 min	
17	<b>Electrical &amp; Electronics Measurements-1:</b> Measurement of voltage, current, power, energy and power factor; Error analysis.	17	25	45 min	
18	<b>Electrical &amp; Electronics Measurements-2:</b> Bridges and Potentiometers, Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes.	17	25	45 min	
19	<b>Digital Electronics &amp; Microprocessors-1:</b> Combinational and Sequential logic circuits, Multiplexer, Demultiplexer.	17	25	45 min	
20	<b>Digital Electronics &amp; Microprocessors-2:</b> Sample and hold circuits, A/D and D/A converters, 8085 Microprocessor: Architecture, Programming and Interfacing.	17	25	45 min	
21	<b>Analog Electronics-1:</b> Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response.	17	25	45 min	
22	<b>Analog Electronics-2:</b> Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers, Schmitt trigger.	17	25	45 min	
23	<b>Electromagnetic Fields-1:</b> 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.	17	25	45 min	
24	<b>Electromagnetic Fields-2:</b> 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.	17	25	45 min	

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Detailed Schedule

# GATE 2022: Online Test Series

## ELECTRICAL ENGINEERING



### Topicwise Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Time	Activation Date
25	Electric Circuits	33	50	90 min	<b>Activated</b>
26	Control Systems	33	50	90 min	
27	Electrical Machines	33	50	90 min	
28	Power Systems	33	50	90 min	
29	Engineering Mathematics	33	50	90 min	
30	General Aptitude	33	50	90 min	
31	Signals & Systems	33	50	90 min	<b>Activated</b>
32	Power Electronics	33	50	90 min	
33	Electrical & Electronics Measurements	33	50	90 min	
34	Digital Electronics & Microprocessors	33	50	90 min	
35	Analog Electronics	33	50	90 min	
36	Electromagnetic Fields	33	50	90 min	
<b>Multiple Subject Tests</b>					
37	Electric Circuits + Control Systems	33	50	90 min	<b>Activated</b>
38	Electrical Machines + Electrical & Electronics Measurements	33	50	90 min	
39	Analog Electronics + Power Systems	33	50	90 min	
40	Signals & Systems + Electromagnetic Fields	33	50	90 min	
41	Power Electronics + Digital Electronics & Microprocessors	33	50	90 min	
42	Engineering Mathematics + General Aptitude	33	50	90 min	
<b>Full Syllabus Tests</b>					
43	Full Syllabus Test-1 (Basic Level)	65	100	180 min	<b>Activated</b>
44	Full Syllabus Test-2 (Basic Level)	65	100	180 min	
45	Full Syllabus Test-3 (Basic Level)	65	100	180 min	
46	Full Syllabus Test-4 (Basic Level)	65	100	180 min	
47	Full Syllabus Test-5 (Advance Level)	65	100	180 min	<b>Activated</b>
48	Full Syllabus Test-6 (Advance Level)	65	100	180 min	
49	Full Syllabus Test-7 (Advance Level)	65	100	180 min	
50	Full Syllabus Test-8 (Advance Level)	65	100	180 min	
<b>Mock Tests</b>					
51	GATE Mock Test 1	65	100	180 min	<b>Activated</b>
52	GATE Mock Test 2	65	100	180 min	
53	GATE Mock Test 3	65	100	180 min	
54	GATE Mock Test 4	65	100	180 min	