GATE 2020 Online Test Series
Electrical Engineering

Topicwise Tests

Tests	Test Activation Date	Test Closing Date	Test Syllabus	No. of Ques.	Marks	Timing
TWT-1	15/03/2019	20/02/2020	**Electric Circuits-1**: 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
TWT-2			**Electric Circuits-2**: Transient response of dc and ac networks, Resonance, Passive filters, Two-port networks.	17	25	45 min
TWT-3			**Control Systems-1**: 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
TWT-4			**Control Systems-2**: 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
TWT-5			**Electrical Machines-1** : 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 polemachines, 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
TWT-6			**Electrical Machines-2** : 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
TWT-7			**Power Systems-1** : 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
TWT-8			**Power Systems-2** : Per-unit quantities, Bus admittance matrix, GaussSeidel and Newton-Raphson load flow methods, Symmetrical components, Symmetrical and unsymmetrical fault analysis, System stability concepts, Equal area criterion.	17	25	45 min
TWT-9			**Engineering mathematics-1**: Linear Algebra, Calculus, Probability and Statistics.	17	25	45 min
TWT-10			**Engineering mathematics-2:** Differential Equations, Complex Analysis, Numerical Methods, Transform Theory.	17	25	45 min
TWT-11			**General Aptitude-1**: Numerical Ability: Numerical computation, numerical estimation, numerical reasoning and data interpretation.	17	25	45 min
TWT-12			**General Aptitude-2:** Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.	17	25	45 min
TWT-13			**Signals & Systems-1** : 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
TWT-14			**Signals & Systems-2** : Sampling theorem, Applications of Fourier Transform, Laplace Transform and z-Transform.	17	25	45 min
TWT-15			**Power Electronics-1**: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
TWT-16			**Power Electronics-2:** DC to DC conversion: Buck, Boost and Buck-Boost converters; Single phase and three phase inverters, Sinusoidal pulse width modulation.	17	25	45 min
TWT-17			**Electrical & Electronics Measurements-1:** Measurement of voltage, current, power, energy and power factor; Error analysis.	17	25	45 min

TWT-18	15/04/2019	20/02/2020	**Electrical & Electronics Measurements-2:** Bridges and Potentiometers, Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes.	17	25	45 min
TWT-19			**Digital Electronics & Microprocessors-1**: Combinational and Sequential logic circuits, Multiplexer, Demultiplexer.	17	25	45 min
TWT-20			**Digital Electronics & Microprocessors-2**: Sample and hold circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and Interfacing.	17	25	45 min
TWT-21			**Analog Electronics-1**: Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response.	17	25	45 min
TWT-22			**Analog Electronics-2:** Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers, Schmitt trigger.	17	25	45 min
TWT-23			**Electromagnetic Fields-1**: 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
TWT-24			**Electromagnetic Fields-2**: 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
Single Subject Tests						
SST-1	15/05/2019	20/02/2020	Electric Circuits	33	50	90 min
SST-2			Control Systems	33	50	90 min
SST-3			Electrical Machines	33	50	90 min
SST-4			Power Systems	33	50	90 min
SST-5			Engineering Mathematics	33	50	90 min
SST-6			General Aptitude	33	50	90 min
SST-7	15/06/2019	20/02/2020	Signals & Systems	33	50	90 min
SST-8			Power Electronics	33	50	90 min
SST-9			Electrical & Electronics Measurements	33	50	90 min
SST-10			Digital Electronics & Microprocessors	33	50	90 min
SST-11			Analog Electronics	33	50	90 min
SST-12			Electromagnetic Fields	33	50	90 min
Multiple Subject Tests						
MST-1	15/07/2019	20/02/2020	Electric Circuits + Control Systems	33	50	90 min
MST-2			Electrical Machines + Electrical & Electronics Measurements	33	50	90 min
MST-3			Analog Electronics + Power System	33	50	90 min
MST-4			Signals & Systems + Electromagnetic Fields	33	50	90 min
MST-5			Power Electronics + Digital Electronics & Microprocessors	33	50	90 min
MST-6			Engineering Mathematics + General Aptitude	33	50	90 min
Full Syllabus Tests						
FST-1	15/08/2019	20/02/2020	Full Syllabus Test-1	65	100	180 min
FST-2			Full Syllabus Test-2	65	100	180 min
FST-3			Full Syllabus Test-3	65	100	180 min
FST-4			Full Syllabus Test-4	65	100	180 min
FST-5	15/09/2019	20/02/2020	Full Syllabus Test-5	65	100	180 min
FST-6			Full Syllabus Test-6	65	100	180 min
FST-7			Full Syllabus Test-7	65	100	180 min
FST-8			Full Syllabus Test-8	65	100	180 min
Candidate has to upload GATE-2020 Admit Card to access below mentioned Tests						
GMT-1	**04/01/2020**	**20/02/2020**	GATE Mock Test 1	65	100	180 min
GMT-2			GATE Mock Test 2	65	100	180 min
GMT-3			GATE Mock Test 3	65	100	180 min
GMT-4			GATE Mock Test 4	65	100	180 min

GATE 2019 SCHEDULE: ELECTRICAL ENGINEERING				
Test Type	**Syllabus [EB-Engineering Branch ; EM- Engineering Mathematics; GA-General Aptitude]**	**No. of Question**	**Marks**	**Duration**
Minor Test -1	**EB-Electric Circuits :** Network graph, KCL, KVL, Node and Mesh analysis, Transient response of dc and ac networks, Sinusoidal steady-state analysis, Resonance, Passive filters, Ideal current and voltage sources, Thevenin's theorem, Norton's theorem, Superposition theorem, Maximum power transfer theorem, Two-port networks, Three phase circuits, Power and power factor in ac circuits.	33	50	90 min
Minor Test - 2	**EB-Electromagnetic Fields:** 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.	33	50	90 min
Minor Test - 3	**EM- Linear Algebra:** Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors. **Transform Theory:** Fourier Transform, Laplace Transform, z-Transform. **Numerical Methods:** Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations.	33	50	90 min
GA: Minor Test- 1	**Verbal Ability:** English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction. **Numerical Ability:** Numerical computation, numerical estimation, numerical reasoning and data interpretation.	33	50	90 min
Minor Test - 4	**EB- Signals & Systems:** Representation of continuous and discrete-time signals, Shifting and scaling operations, Linear Time Invariant and Causal systems, Fourier series representation of continuous periodic signals, Sampling theorem, Applications of Fourier Transform, Laplace Transform and z-Transform.	33	50	90 min
Minor Test - 5	**EB- Electrical Machines-I (Transformers & AC Rotating Machines):** 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.	33	50	90 min

EM: Minor Test- 1	**LINEAR ALGEBRA:** Matrix Algebra, Systems of linear equations, Eigenvalues, Eigenvectors. **TRANSFORM THEORY:** Fourier Transform, Laplace Transform, z-Transform.	33	50	90 min
Minor Test - 6	**GA:** General Aptitude(Language and Analytical Skills)	33	50	90 min
Minor Test - 7	**EB- Electrical Machines-II (DC & Synchronous Machines):** 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.	33	50	90 min
GA: Minor Test- 2	**Verbal Ability:** English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction. **Numerical Ability:** Numerical computation, numerical estimation, numerical reasoning and data interpretation.	33	50	90 min
Minor Test - 8	**EB- Power System-I (Transmission & Distribution):** ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, Gauss-Seidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction.	33	50	90 min
Minor Test - 9	**EM- Calculus:** Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series, Vector identities, Directional derivatives, Line integral, Surface integral, Volume integral, Stokes's theorem, Gauss's theorem, Green's theorem.	33	50	90 min
EM: Minor Test- 2	**CALCULUS:** Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series, Vector identities, Directional derivatives, Line integral, Surface integral, Volume integral, Stokes's theorem, Gauss's theorem, Green's theorem.	33	50	90 min

Minor Test - 10	**EB-Power System-II (Generation, Protection & Stability):** Power generation concepts, Principles of over-current, differential and distance protection; Circuit breakers, System stability concepts, Equal area criterion, Symmetrical components, Symmetrical and unsymmetrical fault analysis.	33	50	90 min
Minor Test -11	**EB-Control Systems:** 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 and Nyquist criteria, Bode plots, Root loci, Stability analysis, Lag, Lead and Lead-Lag compensators; P, PI and PID controllers; State space model, State transition matrix.	33	50	90 min
GA: Minor Test- 3	**Verbal Ability:** English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction. **Numerical Ability:** Numerical computation, numerical estimation, numerical reasoning and data interpretation.	33	50	90 min
Minor Test - 12	**GA:** General Aptitude(Language and Analytical Skills)	33	50	90 min
Minor Test - 13	**EB-Electrical and Electronics Measurements:** Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis.	33	50	90 min
EM: Minor Test- 3	**DIFFERENTIAL EQUATIONS:** First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's equation, Euler's equation, Initial and boundary value problems, Partial Differential Equations, Method of separation of variables.	33	50	90 min
Minor Test -14	**EB- Analog Electronics:** Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response; Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers.	33	50	90 min

Minor Test - 15	**EM-Differential equations:** First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's equation, Euler's equation, Initial and boundary value problems, Partial Differential Equations, Method of separation of variables. **Complex variables:** Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals.	33	50	90 min
Minor Test - 16	**EB- Digital Electronics:** Combinational and Sequential logic circuits, Multiplexer, Demultiplexer, Schmitt trigger, Sample and hold circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and Interfacing.	33	50	90 min
GA: Minor Test- 4	**Verbal Ability:** English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction. **Numerical Ability:** Numerical computation, numerical estimation, numerical reasoning and data interpretation.	33	50	90 min
Minor Test - 17	**EM-Probability and Statistics:** Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis.	33	50	90 min
Minor Test - 18	**EB-Power Electronics-I:** 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.	33	50	90 min
EM: Minor Test- 4	**COMPLEX VARIABLES:** Analytic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor series, Laurent series, Residue theorem, Solution integrals. **NUMERICAL METHODS:** Solutions of nonlinear algebraic equations, Single and Multi-step methods for differential equations.	33	50	90 min
Minor Test - 19	**EB-Power Electronics-II:** Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters, Single phase and three phase inverters, Sinusoidal pulse width modulation.	33	50	90 min
Minor Test -20	**GA:** General Aptitude(Language and Analytical Skills)	33	50	90 min
GA: Minor Test- 5	**Verbal Ability:** English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction. **Numerical Ability:** Numerical computation, numerical estimation, numerical reasoning and data interpretation.	33	50	90 min

Major Test - 1	**FULL SYLLABUS**	65	100	180 min
Major Test - 2	**FULL SYLLABUS**	65	100	180 min
EM: Minor Test- 5	**PROBABILITY AND STATISTICS:** Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis.	33	50	90 min
Major Test - 3	**FULL SYLLABUS**	65	100	180 min
Major Test - 4	**FULL SYLLABUS**	65	100	180 min
Major Test - 5	**FULL SYLLABUS**	65	100	180 min
Major Test - 6	**FULL SYLLABUS**	65	100	180 min
Major Test -7	**FULL SYLLABUS**	65	100	180 min
Major Test - 8	**FULL SYLLABUS**	65	100	180 min
Major Test - 9	**FULL SYLLABUS**	65	100	180 min
Major Test -10	**FULL SYLLABUS**	65	100	180 min