SUBJECT AND MOCK TEST SERIES GATE 2019 SCHEDULE: ELECTRONICS & COMMUNICATION ENGINEERING					
Test Date	**Test Type**	**Syllabus [EB-Engineering Branch ; EM- Engineering Mathematics; GA- General Aptitude]**	**No. of Question**	**Marks**	**Duration**
01/07/2018	Minor Test -1	**EB-Networks –I:** Network Solution methods; nodal and mesh analysis; Network theorems: superposition, Thevenin and Norton's, maximum power transfer; Wye-Delta transformation.	33	50	90 min
08/07/2018	Minor Test - 2	**EB-Networks –II:** Steady state sinusoidal analysis using phasors; Time domain analysis of simple linear circuits; Solution of network equations using Laplace transform; Frequency domain analysis of RLC circuits; Linear 2-port network parameters: driving point and transfer functions; State equations for networks..	33	50	90 min
15/07/2018	Minor Test - 3	**EM- Linear Algebra:**Vector space, basis, linear dependence and independence, matrix algebra, eigen values and eigen vectors, rank, solution of linear equations - existence and uniqueness. **Numerical Methods:** Solution of nonlinear equations, single and multi-step methods for differential equations, convergence criteria.	33	50	90 min
22/07/2018	Minor Test - 4	**EB- Signals & Systems - I:** Continuous-time signals: Fourier series and Fourier transform representations, sampling theorem and applications; Discrete-time signals: discrete-time Fourier transform(DTFT), DFT, FFT, Z-transform, interpolation of discrete-time signals.	33	50	90 min
29/07/2018	Minor Test - 5	**EB- Signals & Systems - II:** LTI systems:definition and properties, causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure, frequency response, group delay, phase delay, digital filter design techniques.	33	50	90 min
05/08/2018	Minor Test - 6	**GA:** General Aptitude(Language and Analytical Skills)	33	50	90 min
12/08/2018	Minor Test - 7	**EB- Electronic Devices :** Energy bands in intrinsic and extrinsic silicon; Carrier transport: diffusion current, drift current, mobility and resistivity; Generation and recombination of carriers; Poisson and continuity equations; P-N junction, Zener diode, BJT, MOS capacitor, MOSFET, LED, photo diode and solar cell; Integrated circuit fabrication process: oxidation, diffusion, ion implantation, photolithography and twin-tub CMOS process.	33	50	90 min

19/08/2018	Minor Test - 8	**EB- Analog Circuits -I:** Small signal equivalent circuits of diodes, BJTs and MOSFETs; Simple diode circuits: clipping, clamping and rectifiers; Singlestage BJT and MOSFET amplifiers: biasing, bias stability, mid-frequency small signal analysis and frequency response; BJT and MOSFET amplifiers: multi-stage, differential, feedback, power and operational.	33	50	90 min
26/08/2018	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, line, surface and volume integrals, Taylor series. **Vector Analysis: V**ectors in plane and space, vector operations, gradient, divergence and curl, Gauss's, Green's and Stoke's theorems.	33	50	90 min
02/09/2018	Minor Test - 10	**EB- Analog Circuits -II:** Simple op-amp circuits; Active filters; Sinusoidal oscillators: criterion for oscillation, single-transistor and op-amp configurations; Function generators, wave-shaping circuits and 555 timers; Voltage reference circuits; Power supplies: ripple removal and regulation.	33	50	90 min
09/09/2018	Minor Test -11	**EB- Digital Circuits:** Number systems; Combinatorial circuits: Boolean algebra, minimization of functions using Boolean identities and Karnaugh map, logic gates and their static CMOS implementations, arithmetic circuits, code converters, multiplexers, decoders and PLAs; Sequential circuits: latches and flip-flops, counters, shiftregisters and finite state machines; Data converters:sample and hold circuits, ADCs and DACs; Semiconductor memories: ROM, SRAM, DRAM; 8-bit microprocessor (8085): architecture, programming, memory and I/O interfacing.	33	50	90 min
16/09/2018	Minor Test - 12	**GA:** General Aptitude(Language and Analytical Skills)	33	50	90 min
23/09/2018	Minor Test - 13	**EB- Control Systems –I :** Basic control system components; Feedback principle; Transfer function; Block diagram representation; Signal flow graph; Transient and steady-state analysis of LTI systems; Frequency response..	33	50	90 min
30/09/2018	Minor Test -14	**EB- Control Systems –II :** Routh-Hurwitz and Nyquist stability criteria; Bode and root-locus plots; Lag, lead and lag-lead compensation; State variable model and solution of state equation of LTI systems.	33	50	90 min

07/10/2018	Minor Test - 15	**EM-Differential Equations:** First order equations (linear and nonlinear), higher order linear differential equations, Cauchy's and Euler's equations, methods of solution using variation of parameters, complementary function and particular integral, partial differential equations, variable separable method, initial and boundary value problems. **Complex Analysis:** Analytic functions, Cauchy's integral theorem, Cauchy's integral formula; Taylor's and Laurent's series, residue theorem.	33	50	90 min
14/10/2018	Minor Test - 16	**EB- Communications –I :** Random processes:autocorrelation and power spectral density,properties of white noise, filtering of random signals through LTI systems; Analog communications: amplitude modulation and demodulation, angle modulation and demodulation, spectra of AM and FM, superheterodyne receivers, circuits for analog communications; Information theory: entropy, mutual information and channel capacity theorem	33	50	90 min
21/10/2018	Minor Test - 17	**EM-Probability and Statistics:** Mean, median, mode and standard deviation; combinatorial probability, probability distribution functions - binomial, Poisson, exponential and normal; Joint and conditional probability; Correlation and regression analysis.	33	50	90 min
28/10/2018	Minor Test - 18	**EB- Communications –II :** Digital communications: PCM, DPCM, digital modulation schemes, amplitude, phase and frequency shift keying (ASK, PSK, FSK), QAM, MAP and ML decoding, matched filter receiver, calculation of bandwidth, SNR and BER for digital modulation; Fundamentals of error correction, Hamming codes; Timing and frequency synchronization, inter-symbol interference and its mitigation; Basics of TDMA, FDMA and CDMA.	33	50	90 min
04/11/2018	Minor Test - 19	**EB- Electromagnetics: Electrostatics;** Maxwell's equations: differential and integral forms and their interpretation, boundary conditions, wave equation, Poynting vector; Plane waves and properties: reflection and refraction, polarization, phase and group velocity, propagation through various media, skin depth; Transmission lines: equations, characteristic impedance, impedance matching, impedance transformation, S-parameters, Smith chart; Waveguides: modes, boundary conditions, cut-off frequencies, dispersion relations; Antennas: antenna types, radiation pattern, gain and directivity, return loss, antenna arrays; Basics of radar; Light propagation in optical fibers.	33	50	90 min
11/11/2018	Minor Test -20	**GA:** General Aptitude(Language and Analytical Skills)	33	50	90 min
18/11/2018	Major Test - 1	**FULL SYLLABUS**	65	100	180 min
25/11/2018	Major Test - 2	**FULL SYLLABUS**	65	100	180 min

02/12/2018	Major Test - 3	**FULL SYLLABUS**	65	100	180 min
09/12/2018	Major Test - 4	**FULL SYLLABUS**	65	100	180 min
16/12/2018	Major Test - 5	**FULL SYLLABUS**	65	100	180 min
30/12/2018	Major Test - 6	**FULL SYLLABUS**	65	100	180 min
06/01/2019	Major Test -7	**FULL SYLLABUS**	65	100	180 min
13/01/2019	Major Test - 8	**FULL SYLLABUS**	65	100	180 min
20/01/2019	Major Test - 9	**FULL SYLLABUS**	65	100	180 min
27/01/2019	Major Test -10	**FULL SYLLABUS**	65	100	180 min

NOTE:

1. The above mentioned Dates are Opening Dates for Tests and each Test is valid till March 2019.