GATE 2018 Online Test Series - Mechanical Engineering

S.No	Type of test	Test Live from	Test No	Test details	Test Syllabus	Difficulty level	No of questions	Max Marks	Test duration
1			1	Fluid Mechanics-I	Fluid properties; fluid statics, manometry, buoyancy; control-volume analysis of mass, momentum and energy,	Easy	20	40	60 min
2			2	Fluid Mechanics-II	Dynamics of Fluids :fluid acceleration; differential equations of continuity and momentum;Bernoulli's equation & its Applications. Viscous flow of incompressible	Easy	20	40	60 min
3			3	Fluid Mechanics-III	Boundary layer; elementary turbulent flow; flow through pipes, head losses in pipes due to friction	Easy	20	40	60 min
4			4	Thermodynamics-I	Zeroth, First and Second laws of thermodynamics; thermodynamic system and processes; Carnot cycle, irreversibility and availability, calculation of work and heat in	Easy	20	40	60 min
5			5	Thermodynamics-II	Rankine, Otto, Diesel and Dual Cycles; ideal and real gases; compressibility factor; Gas mixtures.	Easy	20	40	60 min
6			6	Heat Transfer-I	Modes of heat transfer; one dimensional heat conduction, resistance concept, electrical analogy, unsteady heat conduction & fins	Easy	20	40	60 min
7			7	Heat Transfer-II	Free and forced convection, Correlations for convective heat transfer	Easy	20	40	60 min
8			8	Heat Transfer-III	Radiative heat transfer – Radiation heat transfer co- efficient; boiling and condensation, Heat exchanger performance analysis	Easy	20	40	60 min
9			9	IC Engines & RAC-I	SI and CI Engines, Engine Systems and Components, Performance characteristics and testing of IC Engines; Fuels; Emissions and Emission Control.	Easy	20	40	60 min
10			10	IC Engines & RAC-II	Vapour compression refrigeration, Refrigerants and Working cycles, Compressors, Condensers, Evaporators and Expansion devices, Other types of refrigeration systems	Easy	20	40	60 min
11			11	IC Engines & RAC-III	Psychometric properties and processes, Comfort chart, Comfort and industrial air conditioning, Load calculations and Heat pumps	Easy	20	40	60 min
12			12	Turbomachinery-I	Dimensional Analysis, Impact of Jet, Pelton-wheel, Francis and Kaplan turbines - impulse and reaction principles, velocity diagrams.	Easy	20	40	60 min
13			13	Turbomachinery-II	Steam and Gas Turbines,Theory of Jet Propulsion – Pulse jet and Ram Jet Engines, Reciprocating and Rotary Compressors – Theory and Applications	Easy	20	40	60 min
14			14	Power Plant Engineering-I	Rankine and Brayton cycles with regeneration and reheat, Fuels and their properties, Flue gas analysis, Boilers, steam turbines, other power plant components like	Easy	20	40	60 min
15			15	Renewable sources of energy-I	Solar Radiation, Solar Thermal Energy collection - Flat Plate and focusing collectors their materials and performance. Solar Thermal Energy Storage, Applications –	Easy	20	40	60 min
16			16	Renewable sources of energy-II	Solar Photovoltaic Conversion; Harnessing of Wind Energy, Bio-mass and Tidal Energy – Methods and Applications, Working principles of Fuel Cells.	Easy	20	40	60 min
17			17	Engineering Mechancis-I	Free body diagrams and equilibrium; trusses and frames; Friction, Centroid and Centre of Gravity.	Easy	20	40	60 min
18			18	Engineering Mechancis-II	kinematics and dynamics of particles and of rigid bodies in plane motion, including impulse and momentum (linear and angular) and energy formulations; collisions	Easy	20	40	60 min
19			19	Engineering Mechancis-III	Stress and strain, elastic constants, poisson's ratio Mohr's circle for plane stress and plane strain, energy methods; thermal stresses, Strain gauges and rosettes	Easy	20	40	60 min
20			20	Engineering Mechancis-IV	Shear force and bending moment diagrams; bending and shear stresses; deflection of beams	Easy	20	40	60 min
21			21	Engineering Mechancis-V	Thin cylinders, Thick cylinders, Stresses on inclined planes, Shafts	Easy	20	40	60 min

22	Section Test - Partial Syllabus	7th June 2017 Onwards	22	Engineering Materials-I	Structure and properties of engineering materials, heat treatment, stressstrain diagrams for engineering materials	Easy	20	40	60 min
23			23	Engineering Materials-II	Basics of Nano-materials, Testing, Corrosion prevention and control	Easy	20	40	60 min
24			24	Mechanisms and Machines-I	Kinematics of Mechanisms, Dynamics of slider-crank mechanism, Displacement, velocity and acceleration analysis of plane mechanisms	Easy	20	40	60 min
25			25	Mechanisms and Machines-II	Cam, Gears & gear trains, Helical, Spiral and Worm Gears, Governor	Easy	20	40	60 min
26			26	Mechanisms and Machines-III	Balancing of Rotating masses, Balancing of Reciprocating masses and Gyroscope	Easy	20	40	60 min
27			27	Mechanisms and Machines-IV	Free and forced vibration of single degree of freedom systems; effect of damping	Easy	20	40	60 min
28			28	Mechanisms and Machines-V	vibration isolation; resonance, critical speeds of shafts	Easy	20	40	60 min
29			29	Design of Machine Elements-I	Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram	Easy	20	40	60 min
30			30	Design of Machine Elements-II	Principles of the design of machine elements such as bolted, riveted and welded joints, Shafts, fly wheels.	Easy	20	40	60 min
31			31	Design of Machine Elements-III	Spur gears, rolling and sliding contact bearings, brakes and clutches, Gears, Bearings, Brakes, Clutches	Easy	20	40	60 min
32			32	Manufacturing Science-I	Metal Casting: Design of patterns, moulds and cores; solidification and cooling; riser and gating design, design considerations	Easy	20	40	60 min
33			33	Manufacturing Science-II	Forming: Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet	Easy	20	40	60 min
34			34	Manufacturing Science-III	Joining: Physics of welding, brazing and soldering; adhesive bonding; design considerations in welding.	Easy	20	40	60 min
35			35	Manufacturing Science-IV	Machining and Machine Tool Operations: Mechanics of machining, single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of	Easy	20	40	60 min
36			36	Manufacturing Science-V	Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish	Easy	20	40	60 min
37			37	Industrial Engineering-I	Production Planning and Control: Forecasting models, aggregate production planning, sequencing, materials requirement planning, Break even analysis, line balancing,	Easy	20	40	60 min
38			38	Industrial Engineering-II	Operations Research:network flow models, simple queuing models, PERT and CPM. Inventory Control: Deterministic models; safety stock inventory control systems	Easy	20	40	60 min
39			39	Maintenance Engineering-I	Failure concepts and characteristics-Reliability, Failure analysis, Machine Vibration, Data acquisition, Fault Detection,	Easy	20	40	60 min
40			40	Maintenance Engineering-II	Vibration Monitoring, Field Balancing of Rotors, Noise Monitoring, Wear and Debris Analysis, Signature Analysis, NDT Techniques in Condition Monitoring.	Easy	20	40	60 min
41			41	Mechatronics & Robotics-I	Microprocessors and Microcontrollers: Architecture, programming, I/O Computer interfacing, Programmable logic controller, Sensors and actuators, Piezoelectric	Easy	20	40	60 min
42			42	Mechatronics & Robotics-II	Control Systems Mathematical modeling of Physical systems, control signals, controllability and observability	Easy	20	40	60 min
43			43	Mechatronics & Robotics-III	Robotics, Robot Classification, Robot Specification, notation; Direct and Inverse Kinematics; Homogeneous Coordinates and Arm Equation of four Axis SCARA Robot.	Easy	20	40	60 min
44			44	GS-1	eneral Principles of Design, Drawing, Importance of Safety, Basics of Project Manageme	Easy	20	40	60 min

45			45	GS-2	uality practices in production, construction,maintenance and services, Basics of Energy a	Easy	20	40	60 min
46			46	GS-3	Basics of Material Science and Engineering, Ethics and values in Engineering profession	Easy	20	40	60 min
47			47	GS-4	General Aptitude, Numerical Analysis and Engineering Mathematics	Easy	20	40	60 min
48			48	GS-5	Current issues of national and international importance, Information and Communication Technologies (ICT) based tools and their applications in Engineering	Easy	20	40	60 min
49	Mock Tests	15th Nov'17	MT-1	Paper -1	General Studies- Full Syllabus	Moderate	100	200	120 min
				Paper-2	Core Engg Full Syllabus		150	300	180 min
50		29th Nov'17	MT-1	Paper -1	General Studies- Full Syllabus	Moderate	100	200	120 min
				Paper-2	Core Engg Full Syllabus		150	300	180 min
51		13th Dec'17	MT-3	Paper -1	General Studies- Full Syllabus	Moderate	100	200	120 min
				Paper-2	Core Engg Full Syllabus		150	300	180 min