

### Topicwise Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Time	Activation Date
1	<b>Strength of Materials-1:</b> Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams.	17	25	45 min	Activated
2	<b>Strength of Materials-2:</b> torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.	17	25	45 min	
3	<b>Thermodynamics-1:</b> Thermodynamic systems and processes; properties of pure substances, behaviour of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes.	17	25	45 min	
4	<b>Thermodynamics-2:</b> second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.	17	25	45 min	
5	<b>Fluid Mechanics &amp; Hydraulic Machines-1:</b> Fluid properties; fluid statics, manometry, buoyancy, forces on submerged bodies, stability of floating bodies; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum.	17	25	45 min	
6	<b>Fluid Mechanics &amp; Hydraulic Machines-2:</b> Bernoulli's equation; dimensional analysis; viscous flow of incompressible fluids, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes, bends and fittings; Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines.	17	25	45 min	
7	<b>Theory of Machines-1:</b> Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; Free and forced vibration of single degree of freedom systems.	17	25	45 min	
8	<b>Theory of Machines-2:</b> Gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscopes; effect of damping; vibration isolation; resonance; critical speeds of shafts.	17	25	45 min	
9	<b>Engineering mathematics-1:</b> Linear Algebra, Calculus, Vector Analysis, Probability and Statistics.	17	25	45 min	
10	<b>Engineering mathematics-2:</b> Differential Equations, Complex Analysis, Numerical Methods.	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>Heat Transfer-1:</b> Modes of heat transfer; one dimensional heat conduction, resistance concept and electrical analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system, Heisler's charts; thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat transfer correlations for flow over flat plates and through pipes, effect of turbulence.	17	25	45 min	Activated
14	<b>Heat Transfer-2:</b> Heat exchanger performance, LMTD and NTU methods; radiative heat transfer, Stefan-Boltzmann law, Wien's displacement law, black and grey surfaces, view factors, radiation network analysis.	17	25	45 min	
15	<b>Engineering Mechanics and Engineering Materials-1:</b> Free-body diagrams and equilibrium; trusses and frames; virtual work; Structure and properties of engineering materials, phase diagrams	17	25	45 min	
16	<b>Engineering Mechanics and Engineering Materials-2:</b> Kinematics and dynamics of particles and of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations, collisions; heat treatment, stress-strain diagrams for engineering materials.	17	25	45 min	
17	<b>Manufacturing Engineering-1:</b> Different types of castings, design of patterns, moulds and cores; solidification and cooling; riser and gating design. Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy. Principles of welding, brazing, soldering and adhesive bonding. Basic concepts of CAD/CAM and their integration tools.	17	25	45 min	
18	<b>Manufacturing Engineering-2:</b> Mechanics of machining; basic machine tools; single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, design of jigs and fixtures. Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly.	17	25	45 min	
19	<b>I.C Engine &amp; Power Plant:</b> Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. Air-standard Otto, Diesel and dual cycles.	17	25	45 min	
20	<b>Refrigeration &amp; Air-Conditioning :</b> Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes.	17	25	45 min	
21	<b>Industrial Engineering-1:</b> Forecasting models, aggregate production planning, scheduling, materials requirement planning.	17	25	45 min	
22	<b>Industrial Engineering-2:</b> Deterministic models; safety stock inventory control systems; linear programming, simplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.	17	25	45 min	
23	<b>Machine Design-1:</b> Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram.	17	25	45 min	
24	<b>Machine Design-2:</b> Principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs.	17	25	45 min	

**ME**

Detailed Schedule

# GATE 2022: Online Test Series

## MECHANICAL ENGINEERING



### Topicwise Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Time	Activation Date
25	Strength of Materials	33	50	90 min	<b>Activated</b>
26	Thermodynamics	33	50	90 min	
27	Fluid Mechanics & Hydraulic Machines	33	50	90 min	
28	Theory of Machines	33	50	90 min	
29	Engineering Mathematics	33	50	90 min	
30	General Aptitude	33	50	90 min	
31	Heat Transfer	33	50	90 min	<b>Activated</b>
32	Engineering Mechanics and Engineering Materials	33	50	90 min	
33	Manufacturing Engineering	33	50	90 min	
34	I.C Engine, Power Plant, Refrigeration & Air-Conditioning	33	50	90 min	
35	Industrial Engineering	33	50	90 min	
36	Machine Design	33	50	90 min	
<b>Multiple Subject Tests</b>					
37	Engineering Mechanics and Engineering Materials + Theory of Machines	33	50	90 min	<b>Activated</b>
38	Strength of Materials + Machine Design	33	50	90 min	
39	Thermodynamics + Fluid Mechanics & Hydraulic Machines	33	50	90 min	
40	Manufacturing Engineering + Heat Transfer	33	50	90 min	
41	Industrial Engineering + I.C Engine, Power Plant, Refrigeration & Air-Conditioning	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	