Topicwise Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Time	Activation Date
1	**Strength of Materials-1:** 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; concept of shear centre deflection of beams.	17	25	45 min	
2	**Strength of Materials-2:** 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	**Thermodynamics-1:** 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	**30-03-2023**
4	**Thermodynamics-2:** Second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.	17	25	45 min	
5	**Fluid Mechanics & Hydraulic Machines-1:** Fluid properties; fluid statics, 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	**Fluid Mechanics & Hydraulic Machines-2:** 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 r eaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines.	17	25	45 min	
7	**Manufacturing Engineering-1:** 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. Additive manufacturing, NC/CNC machines and CNC programming	17	25	45 min	
8	**Manufacturing Engineering-2:** 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; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly. Concepts of coordinate measuring machine (CMM); Abrasive machining process.	17	25	45 min	**15-04-2023**
9	**Engineering mathematics-1:** Linear Algebra, Calculus, Vector Analysis, Numerical Methods.	17	25	45 min	
10	**Engineering mathematics-2:** Differential Equations, Complex Analysis, Fourier Series, Probability and Statistics.	17	25	45 min	
11	**General Aptitude (Part-1):** Numerical Ability, Numerical computation, numerical estimation, and data interpretation.	17	25	45 min	
12	**General Aptitude (Part-2) :** Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning, numerical reasoning, verbal deduction and spatial aptitude.	17	25	45 min	
13	**Heat Transfer-1:** 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	
14	**Heat Transfer-2:** 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	**Engineering Mechanics and Engineering Materials-1:** Free-body diagrams and equilibrium; trusses and frames; Friction and its applications including rolling friction, belt pulley, brakes, clutches, screw jack, wedge, vehicles etc. virtual work; Structure and properties of engineering materials, phase diagrams	17	25	45 min	
16	**Engineering Mechanics and Engineering Materials-2:** Kinematics and dynamics of particles and of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations, lagrange's equation; heat treatment, stress-strain diagrams for engineering materials.	17	25	45 min	**30-04-2023**
17	**Theory of Machines-1:** Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; Gears and gear trains; Free and forced vibration of single degree of freedom systems, effect of damping; vibration isolation; resonance; critical speeds of shafts.	17	25	45 min	
18	**Theory of Machines-2:** Cams, flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.	17	25	45 min	
19	**I.C Engine & Power Plant:** Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. Air-standard Otto, Diesel and dual cycles, Basics of compressible fluid flow, steam and gas turbines.	17	25	45 min	
20	**Refrigeration & Air-Conditioning :** Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes.	17	25	45 min	
21	**Industrial Engineering-1:** Forecasting models, aggregate production planning, scheduling, materials requirement planning. Lean Manufacturing.	17	25	45 min	**15-05-2023**
22	**Industrial Engineering-2:** 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	**Machine Design-1:** Design for static and dynamic loading; failure theories; fatigue strength and the S-N diagram.	17	25	45 min	
24	**Machine Design-2:** 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	

GATE 2024 ONLINE TEST SERIES

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MECHANICAL ENGINEERING

Test No.	Test Syllabus	No. of Ques.	Marks	Duration	Activation Date
Single Subject Tests					
25	Strength of Materials	33	50	90 min	15-6-2023
26	Thermodynamics	33	50	90 min	
27	Fluid Mechanics & Hydraulic Machines	33	50	90 min	
28	Manufacturing Engineering	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	15-07-2023
32	Engineering Mechanics and Engineering Materials	33	50	90 min	
33	Theory of Machines	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	
Full Syllabus Tests					
37	Full Syllabus Test-1 (Basic Level)	65	100	180 min	15-08-2023
38	Full Syllabus Test-2 (Basic Level)	65	100	180 min	
39	Full Syllabus Test-3 (Basic Level)	65	100	180 min	
40	Full Syllabus Test-4 (Basic Level)	65	100	180 min	
41	Full Syllabus Test-5 (Advance Level)	65	100	180 min	15-09-2023
42	Full Syllabus Test-6 (Advance Level)	65	100	180 min	
43	Full Syllabus Test-7 (Advance Level)	65	100	180 min	
44	Full Syllabus Test-8 (Advance Level)	65	100	180 min	
Candidate has to upload GATE-2024 Admit Card to access below mentioned tests					
45	GATE Mock Test 1	65	100	180 min	15-10-2023
46	GATE Mock Test 2	65	100	180 min	
47	GATE Mock Test 3	65	100	180 min	
48	GATE Mock Test 4	65	100	180 min	