

PI

Schedule of GATE 2020 Online Test Series

PRODUCTION & INDUSTRIAL ENGINEERING

Topicwise Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Time	Activation Date	
1	TOM & Machine Design-1: Analysis of planar mechanisms, cams and followers; governors and fly wheels.	17	25	45 min		
2	TOM & Machine Design-2: design of bolted, riveted and welded joints; interference/shrink fit joints; design of shafts, keys, spur gears, belt drives, brakes and clutches; pressure vessels.	17	25	45 min		
3	Fluid Mechanics: Fluid statics, Bernoulli's equation, flow through pipes, equations of continuity and momentum, capillary action, contact angle and wetting.	17	25	45 min		
4	Thermodynamics: Zeroth, first and second law of thermodynamics, thermodynamic system and processes, calculation of work and heat for systems and control volumes.	17	25	45 min		
5	Applied Mechanics-1: Equivalent force systems, free body concepts, equations of equilibrium; trusses.	17	25	45 min		
6	Applied Mechanics-2: Stress, strain and their relationship; failure theories, Mohr's circle(stress), deflection of beams, bending and shear stress, Euler's theory of columns.	17	25	45 min		
7	Manufacturing Process- 1: Manufacturing Process- 1: Types of casting processes & applications; patterns – types and materials; allowances; moulds and cores – materials, making, and testing; casting techniques of cast iron, steels and nonferrous metals and alloys; analysis of solidification and microstructure development; design of gating and riser; origin of defects. Principles of fusion welding processes (manual metal arc, MIG, TIG, plasma arc, submerged arc welding processes)–different heat sources (flame, arc, resistive, laser, electron beam), and heat transfer and associated losses, flux application, feeding of filler rod; Principles of solid state welding processes (friction, explosive welding, ultrasonic welding processes); Principles of adhesive, brazing and soldering processes; Origins of welding defects.	17	25	45 min	10-04-2019	
8	Manufacturing Process- 2: Stress-strain relations in elastic and plastic deformation; concept of flow stress; hot and cold working – forging, rolling, extrusion and wire drawing; sheet metal working processes – blanking, bending and deep drawing; ideal work and slab analysis; origin of metal working defects.	17	25	45 min		
9	Engineering mathematics-1: Linear Algebra, Calculus, Vector Analysis, Probability and Statistics.	17	25	45 min		
10	Engineering mathematics-2: Differential Equations, Complex Analysis, Numerical Methods.	17	25	45 min		
11	General Aptitude-1: Numerical Ability: Numerical computation, numerical estimation, numerical reasoning and data interpretation.	17	25	45 min		
12	General Aptitude-2: Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.	17	25	45 min		
13	IC Engine: Air standard cycles, Basics of internal combustion engines and steam turbines.	17	25	45 min		
14	Heat Transfer: Basic applications of conduction, convection and radiation.	17	25	45 min		
15	Material Science-1: Structure and properties correlation; engineering materials (metals, ceramics, polymers and composites) – properties and applications; stress-strain behavior of metals and alloys;	17	25	45 min		
16	Material Science-2: Iron-carbon phase diagram, heat treatment of metals and alloys, its influence on mechanical properties.	17	25	45 min		
17	Manufacturing Process- 3: Basic machine tools like centre lathe, milling machine, and drilling machine – construction and kinematics; machining processes - turning, taper turning, thread cutting, drilling, boring, milling, gear cutting, thread production, grinding; geometry of single point cutting tools, chip formation, cutting forces, specific cutting energy and power requirements, Merchant's analysis; basis of selection of machining parameters; tool materials, tool wear and tool life, economics of machining, thermal aspects of machining, cutting fluids, machinability; Principles, applications, effect of process parameters on MRR and product quality of non-traditional machining processes – USM, AJM, WJM, AWJM, EDM and Wire cut EDM, LBM, EBM, PAM, CHM, ECM.	17	25	45 min		
18	Manufacturing Process- 4: Powder processing: Production of metal/ceramic powders, compaction and sintering of metals and ceramic powders. Polymers and Composites: Plastic processing – injection, compression and blow molding, extrusion, calendaring and thermoforming; molding of composites.	17	25	45 min		10-05-2019
19	Manufacturing Process- 5: Jigs and fixtures – principles, applications, and design. Metrology and Inspection: Limits, fits, and tolerances, gauge design, interchangeability, selective assembly; linear, angular, and form measurements(straightness, squareness, flatness, roundness, and cylindricity) by mechanical and optical methods; inspection of screw threads and gears; surface finish measurement by contact and non-contact methods; tolerance analysis in manufacturing and assembly.	17	25	45 min		
20	Manufacturing Process- 6: Computer Integrated Manufacturing: Basic concepts of CAD – geometric modeling, CAM – CNC and robotics – configurations, drives and controls, Group Technology and its applications – CAPP, cellular manufacturing and FMS. Manufacturing Analysis: Sources of errors in manufacturing; process capability; tolerance analysis in manufacturing and assembly; process planning; parameter selection and comparison of production alternatives; time and cost analysis; manufacturing technologies – strategies and selection.	17	25	45 min		
21	Industrial Engineering-1: Product Design and Development; Work System Design; Facility Design.	17	25	45 min		
22	Industrial Engineering-2: Engineering Economy and Costing; Production planning and inventory control.	17	25	45 min		
23	Operation Research-1: Operation research, quality management reliability and maintenance.	17	25	45 min		
24	Operation Research-2: Management information system ,intellectual property system.	17	25	45 min		

Single Subject Tests

Test No.	Test Syllabus	No. of Ques.	Marks	Duration	Activation Date
25	TOM & Machine Design	33	50	90 min	10-06-2019
26	Fluid Mechanics	33	50	90 min	
27	Thermodynamics	33	50	90 min	
28	Applied Mechanics	33	50	90 min	
29	Engineering Mathematics	33	50	90 min	
30	General Aptitude	33	50	90 min	
31	Manufacturing Process-I (1+2+3)	33	50	90 min	10-07-2019
32	Manufacturing Process-II (4+5+6)	33	50	90 min	
33	IC Engine + Heat Transfer	33	50	90 min	
34	Material Science	33	50	90 min	
35	Industrial Engineering	33	50	90 min	
36	Operation Research	33	50	90 min	

Multiple Subject Tests

37	Engineering Materials + Applied Mechanics	33	50	90 min	10-08-2019
38	TOM + Machine Design	33	50	90 min	
39	Thermodynamics + Fluid Mechanics & Hydraulic Machines + HMT + IC Engine	33	50	90 min	
40	Manufacturing (1+2+3) + Industrial Engineering	33	50	90 min	
41	Manufacturing (4+5+6) + Operation Research	33	50	90 min	
42	Engineering Mathematics + General Aptitude	33	50	90 min	

Full Syllabus Tests

43	Full Syllabus Test-1 (Basic Level)	65	100	180 min	10-09-2019
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	30-09-2019
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	

Candidate has to upload GATE-2020 Admit Card to access below mentioned tests

51	GATE Mock Test 1	65	100	180 min	
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	

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