



ACE[®]
Engineering Academy
Leading Institute for ESE/GATE/PSUs

Maharashtra Gazetted Technical Services Mains Examination

Online Test Series

Mechanical Engineering - Schedule

No.of Tests : 25	
Subject Wise Tests	21
Full Length Mock Tests	4

Note:

- ❖ The Syllabus considered as per MPSC. ACE Engineering Academy does not take any responsibility for deviations in syllabus in the final MPSC exam. As per previous Notification of MPSC each question carries '2' mark and negative marking of 1/4th (i.e. 0.5 Marks) for each wrong answer.
- ❖ The Dates of above Mock Tests may Change according to the MPSC Exam schedule.
- ❖ Tests will be activated at 6:00 pm on scheduled day.
- ❖ All tests will be Active upto MPSC Technical Services Mains Examination Examination.

Subject-wise Tests

(No. of Questions: 25, Time duration: 30 Minutes and Marks: 50 M)

Test No	Name of the Test	Date of Activation
Test-01 Paper-I	Applied Thermodynamics-1: Zeroth law of Thermodynamics, First law of Thermodynamics, Second law of Thermodynamics, calculation of work and heat in various processes; Second law of Thermodynamics;	06-07-2022
Test-02 Paper-II	Strength of Materials-1: Stress and Strain, Elastic Constants: Poission's Ratio, Modulus of elasticity, Modulus of rigidity, Bulk modulus, Shear Force and Bending Moment diagram,	09-07-2022
Test-03 Paper-I	Applied Thermodynamics-2: Thermodynamics property charts and tables, availability and irreversibility, Thermodynamic relations.	13-07-2022
Test-04 Paper-II	Strength of Materials-2: Deflection of Beams, Thin Cylindrical and Spherical Shells, Strain Energy, Torsion.	
Test-05 Paper-I	Fluid Mechanics and Turbomachinery-1: Fluid definition and properties, Newton's Law of viscosity concept of continuum, Classification of fluid, Fluid statics, manometry, buoyancy, force of submerged bodies, stability of floating bodies	16-07-2022
Test-06 Paper-II	Theory of Machines and Vibration-1: Kinematics - Structure, Machine, Link and its types, Kinematics pairs, Kinematic chain and mechanism, Grubler's criteria, Inversions of kinematics chains, inversions of-four bar chain, single slider crank chain and double slider crank chain. Displacement, Velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains;	
Test-07 Paper-I	Fluid Mechanics and Turbomachinery-2: viscous flow of incompressible fluid, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes. Impulse and reaction principles, velocity diagrams, Pelton-wheel, Francis and Kaplan turbines.	20-07-2022
Test-08 Paper-II	Theory of Machines and Vibration-2: flywheels and governors; balancing of reciprocating and rotating masses; gyroscope. Free and forced vibration of single degree of freedom systems, effect of damping , vibration isolation, resonance critical speeds of shafts.	
Test-09 Paper-I	Heat Transfer-1: Modes of heat transfer; one dimensional heat conduction, resistance concept and electric analogy, heat transfer through fins; unsteady heat conduction, lumped parameter system	23-07-2022
Test-10 Paper-II	Design of Machine Elements: Design consideration in castings & forgings, theories of failure, Design for static loadings, Design against fluctuating loads, Design of shafts, Design of springs, Design of belts.	
Test-11 Paper-I	Heat Transfer-2: thermal boundary layer, dimensionless parameters in free and forced convective heat transfer, heat exchanger performance, LMTD and NTU methods; radiative heat transfer, Stefan Boltzmann law.	30-07-2022

Test No	Name of the Test	Date of Activation
Test-12 Paper-II	Materials Technology: Strain Hardening, Constitution of Alloys, Iron-Carbon Equilibrium Diagram, Heat Treatment of Steels, Cast Irons, Introduction to International Standards/Codes, Non Ferrous Metals and Alloys, Fatigue Failure, Creep, Alloy Steels, Strengthening mechanism, Powder Metallurgy.	30-07-2022
Test-13 Paper-I	Refrigeration and Air Conditioning: Vapour and gas refrigeration and heat pump cycle; properties of moist air, psychrometric chart, basic psychrometric processes.	06-08-2022
Test-14 Paper-II	Production Process-1: Casting, Forming and Joining Processes - Non Destructive Techniques	
Test-15 Paper-I	Internal Combustion Engine: Classification of I.C. Engine, circle Analysis of IC, SI, CI engines, Super charging/Turbocharger Performance characteristics of SI and CI, Air pollution due to IC engine and its norms, engine fuels, engine lubricants, engine cooling, Introduction to CNG, LPG, wankle engines etc., Recent development in IC engine.	13-08-2022
Test-16 Paper-II	Production Process-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.	
Test-17 Paper-I	Power Plant Engineering-1: Thermal Power Plant- Analysis of steam cycle – Carnot, Rankine, Reheat cycle and Regenerative cycle. Layout of Power Plant, layout of pulverized coal burners, fluidized bed combustion, coal handling system, ash handling system. Forced draught and induced draught fans, boiler feed pumps, super heater regenerators, condensers, boilers, de aerators and cooling towers.	20-08-2022
Test-18 Paper-II	Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning.	
Test-19 Paper-I	Power Plant Engineering-2: Hydro power plant – Rainfall, run off and its measurement hydrographs, flow duration curve, reservoir storage capacity, classification of plants – run off river plant, storage river plant, pump storage plant, layout of hydroelectric power plant. Nuclear Power Plant – Introduction of Nuclear Engineering, fission, fusion, nuclear materials, thermal fusion reactor and power plant – PWR, BWR, liquid metal fast breeder, reactors, reactor control, introduction to plasma technology. Diesel and gas turbine power plant – General layout, advantage and disadvantage component, performance of gas turbine power plant, combine heat power generation.	27-08-2022
Test-20 Paper-II	Mechanical Measurements: Limits, Fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurements; alignment and testing methods; tolerances analysis in manufacturing and assembly	

Test No	Name of the Test	Date of Activation
Test-21 Paper-I	<p>Renewable Energy Sources: Solar Energy - Solar concentrators and tracking, Dish and Parabolic trough concentrating generating systems, Central tower solar power plants; Solar Ponds. Basic principle of power generation in a PV cell; Band gap and efficiency of PV cells, solar cells, characteristics, manufacturing methods of mono and poly-crystalline cells; Amorphous silicon thin film cells.</p> <p>Solar Energy - Solar concentrators and tracking, Dish and Parabolic trough concentrating generating systems, Central tower solar power plants; Solar Ponds. Basic principle of power generation in a PV cell; Band gap and efficiency of PV cells, solar cells, characteristics, manufacturing methods of mono and poly-crystalline cells; Amorphous silicon thin film cells.</p>	03-09-2022

Full Length Mock Test Series

(No. of Questions: 100, Time duration: 120 Minutes and Marks: 200 M)

Test-22 Paper-I	Full Length Mock Test-1	10-09-2022
Test-23 Paper-II	Full Length Mock Test-2	11-09-2022
Test-24 Paper-I	Full Length Mock Test-3	17-09-2022
Test-25 Paper-II	Full Length Mock Test-4	18-09-2022