



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

Maharashtra Gazetted Technical Services Mains Examination

Online Test Series

Electrical 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	Electric Circuits: Work, Power and Energy, Resistance, capacitance and inductance, DC circuits, KCL, KVL, Network theorems, fundamentals, RL, RC and RLC circuits, Steady state and transient responses. Series and parallel AC circuits, Three phase circuits, Power calculation in balanced and unbalanced circuits, Linear and non linear loads.	06-07-2022
Test-02 Paper-II	Circuit Breaker: Principle of circuit breaking, arc extinction and arc interruption for and DC breaker, Various types of circuit breakers and their applications, Ratings of breakers, isolators and major HV switchgear.	09-07-2022
Test-03 Paper-I	Transformer: Basics of electromagnetic and electro static, series and parallel magnetic circuits, energy stored in fields, types, construction, operation of single and three phase transformers, equivalent circuit and phasor, diagrams, OC and SC tests, regulation and efficiency calculation, parallel operation, field tests before commissioning.	13-07-2022
Test-04 Paper-II	Protection-1: Principle of over current, earth fault, differential, and distance protection. Concepts of solid state and numeric relays. Protection of generator, transformer, transmission lines, substation, busbar, induction motors. Various LT switchgear devices such as MCCB, ELCB.	
Test-05 Paper-I	DC machines: Fundamentals of energy conversion, Construction and theory of DC machine, DC generator characteristics, Starting, braking and speed control of DC motors, Application of DC machines.	
Test-06 Paper-II	Protection-2 & HVDC Transmission: Specification of impulse wave, multistage impulse generator, insulation coordination, Routine and type tests for cables and transformers, Lightning protection, Early emission arrestors. Power quality issues, Reactive and harmonic compensation, FT devices and their applications, Passive and Active filters, HVDC transmission.	16-07-2022
Test-07 Paper-I	Induction motors: Principle, types, performance characteristics, starting and speed control of single phase and three phase induction motors, Equivalent circuits, phasor diagrams, applications. VFD for induction motors. Energy saving opportunities in using VFD.	
Test-08 Paper-II	Energy Management & Tariff: Energy scenario in India, Energy policies, pricing and reforms, Energy conservation Act, 2001, Electricity Act, 2003. Energy management objectives, Electricity billing, electrical load management and MD control, Tariffs, PF improvements and benefits.	20-07-2022
Test-09 Paper-I	Synchronous machines: Principle, types of synchronous motors, performance characteristics, starting and speed control of single phase and three phase synchronous motors, Equivalent circuits, phasor diagrams, applications. VFD for synchronous motors.	23-07-2022

Test No	Name of the Test	Date of Activation
Test-10 Paper-II	Illumination: Basic terms in lighting systems and features, lamp types and their features, Recommended illumination levels for various tasks, methodology of lighting system energy efficiency study, Illumination system design for residential, commercial, industrial categories. Solar powered illumination and economics associated.	23-07-2022
Test-11 Paper-I	Analog & Digital Electronics: Analog and Digital electronics fundamentals, devices and characteristics, amplifier and oscillator circuits, Operational amplifier, Gates, flip-flops, Combinational and sequential circuits, ADC and DACs.	30-07-2022
Test-12 Paper-II	Distributed Generation: DG set selection and installation factors, Operational features, Energy performance assessment of DG sets, Energy saving majors for DG sets, Synchronization of DGs with utility supply. Parallel operation. UPS technology, types and specifications, Performance assessment.	
Test-13 Paper-I	Transducer: Sensors and transducers, Performance characteristics of measuring instruments, instrument transformers, measurement of physical parameters such as pressure, force, temperature, flow, vibration, torque, etc.	06-08-2022
Test-14 Paper-II	Turbo Machinery: Pump types and characteristics, Pump curves, Factors affecting pump performance, Efficient pumping system operation, Energy conservation in pumping systems. Fan and compressor types, Fan and compressor performance evaluation and efficient system operation, Compressor capacity assessment, Energy saving opportunities in fans and compressors.	
Test-15 Paper-I	Control Systems: Principles of feedback, transfer function, block diagram, steady state error, Steady state and transient specifications, Bode plot, Nyquist plot and Root locus, Relative and absolute Stability considerations.	13-08-2022
Test-16 Paper-II	Refrigeration and Air conditioning: HVAC and refrigeration system, Types of refrigeration system, Common refrigerants and properties, Compressor type and applications, Selection of suitable refrigeration system, Factors affecting performance and energy efficiency of refrigeration plants, Energy saving opportunities.	
Test-17 Paper-I	Power Electronics: Power Devices- Types, Characteristics of various power electronic devices, Triggering and protection circuits, Controlled and uncontrolled rectification, DC to DC converters, DC to AC conversion, modulation techniques, SPWM. Fundamentals of electric drives, 4 quadrant operation, theory and analysis of DC drives, converter and chopper fed DC drives, Voltage, frequency and V/F controlled drives, slip power recovery schemes, fundamentals of wind power generation and grid interface.	20-08-2022
Test-18 Paper-II	Underground Cables: Underground cable and cable accessories, cable in underground structure, cable installation in conduit, cable joints, cable fault detection, over-current protection and lightning protection of underground systems, operation and maintenance of underground system. Grounding systems, Equipment, Ground fault protection, Isolated neutral grounding, Grounding for hazardous locations, substation, tower grounding.	

Test No	Name of the Test	Date of Activation
Test-19 Paper-I	Generation Transmission: Power generation in India and Maharashtra, Renewable Generation, Various types of power plant, major equipment in power plants, Major issues with wind and solar power generation and grid interface. Steady state performance of overhead transmission lines and cables, Calculation of sag and tension in transmission of lines.	27-08-2022
Test-20 Paper-II	Substations-Wiring and Safety Systems: Substation design, bus designs, substation layout, grounding and ground grid design, substation structures, major substation equipment, auxiliary equipment, substation automation, Commissioning and start up. Industrial, residential and commercial wiring, electrical system design, design and audio and video systems, Lifts and Elevator systems, safety norms and codes. Fire fighting apparatus and systems.	
Test-21 Paper-I	Power System Analysis: Analysis symmetrical and unsymmetrical faults, principle of active and reactive power transfer and distribution. Load flow studies, steady state and transient stability, voltage stability, voltage control, economic load dispatch, load frequency control in power systems. per unit quantities, Bus admittance and impedance matrices, symmetrical components.	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