



ACE
Engineering Academy
(Leading Institute for ESE/GATE/PSUs)

TNPSC - AE

ONLINE TEST SERIES



ELECTRICAL ENGINEERING (EE)

—≡ No. of Tests : 22 ≡—



Subject Wise Grand Tests

18



Full Length Mock Tests

4

All tests will be available till 20th May 2018

TEST SERIES HIGHLIGHTS ≡—

- ★ Rank will be given for each test.
- ★ Test wise and overall statistics.
- ★ Comparison with toppers.
- ★ Question wise and test wise time analysis & comparison with toppers on time management.

Subject-wise Tests

Tests will be activated at 6:00 pm on scheduled day

Test No	Subject Name		No. of Questions	Max Marks	Duration	Date of Activation
EE01	ELECTRICAL CIRCUITS	PAPER-I	34	51	30 Min	15-04-2018
EE02	GENERAL SCIENCE	PAPER-II	25	50	30 Min	16-04-2018
EE03	ELECTRIC AND MAGNETIC FIELDS	PAPER-I	34	51	30 Min	17-04-2018
EE04	CURRENT EVENTS	PAPER-II	25	50	30 Min	18-04-2018
EE05	CONTROL SYSTEMS	PAPER-I	34	51	30 Min	19-04-2018
EE06	GEOGRAPHY	PAPER-II	25	50	30 Min	20-04-2018
EE07	ELECTRICAL MACHINES	PAPER-I	34	51	30 Min	21-04-2018
EE08	HISTORY AND CULTURE OF INDIA	PAPER-II	25	50	30 Min	22-04-2018
EE09	DIGITAL PROCESSORS AND COMMUNICATION	PAPER-I	34	51	30 Min	23-04-2018
EE10	INDIAN POLITY	PAPER-II	25	50	30 Min	24-04-2018
EE11	ANALOG AND DIGITAL ELECTRONICS	PAPER-I	34	51	30 Min	25-04-2018
EE12	INDIAN ECONOMY	PAPER-II	25	50	30 Min	26-04-2018
EE13	POWER SYSTEMS	PAPER-I	34	51	30 Min	27-04-2018
EE14	INDIAN NATIONAL MOVEMENT	PAPER-II	25	50	30 Min	28-04-2018
EE15	MEASUREMENTS AND INSTRUMENTATION	PAPER-I	34	51	30 Min	29-04-2018
EE16	APTITUDE AND MENTAL ABILITY TESTS	PAPER-II	25	50	30 Min	30-04-2018
EE17	POWER ELECTRONICS AND DRIVES	PAPER-I	34	51	30 Min	01-05-2018
EE18	RENEWABLE ENERGY SOURCES AND STORAGE DEVICES	PAPER-I	34	51	30 Min	02-05-2018

Full Length Mock Tests

Test No	Mock codes		No. of Questions	Max Marks	Duration	Date of Activation
EE19	Mock-1 PAPER-1 (Electrical Engineering)	PAPER-I	200	300	180 Min	08-05-2018
EE20	Mock-1 PAPER-2 (General Studies)	PAPER-II	100	200	120 Min	09-05-2018
EE21	Mock-2 PAPER-1 (Electrical Engineering)	PAPER-I	200	300	180 Min	14-05-2018
EE22	Mock-2 PAPER-2 (General Studies)	PAPER-II	100	200	120 Min	15-05-2018

Syllabus for Electrical Engineering(Paper-I)

Subject Name	Syllabus
ELECTRICAL CIRCUITS	Circuit elements – Kirchoff’s Laws – Mesh and Nodal Analysis - Network Theorems and Applications for DC and AC circuits: Thevenin’s Theorem, Norton’s Theorem, Superposition Theorem, Maximum Power Transfer Theorem – Sinusoidal Steady State Analysis of RL-RC-RLC Circuits- Resonant Circuits - Natural and Forced Response – Transient Response of RL-RC-RLC Circuits-Two-port networks – Three Phase Circuits.
ELECTRIC AND MAGNETIC FIELDS	Coulomb's Law-Electric Field Intensity-Electric Flux Density-Gauss's Law-Divergence - Electric Field and Potential due to Point, Line, Plane and Spherical Charge Distributions - Effect of Dielectric Medium - Capacitance of Simple Configurations. Magnetic Circuits- Magnetomotive force - Reluctance-Faraday’s laws-Lenz’s law--Biot- Savart’s law - Ampere’s law - Fleming’s Left and Right Hand Rule-Lorentz force - Inductance - Self and Mutual Inductance-Dot Convention-Coupled Circuits.
MEASUREMENTS AND INSTRUMENTATION	Units and Standards – Static and Dynamic Characteristics-Types of Errors-Error Analysis – Measurement of Current, Voltage, Power, Power-factor and Energy – Indicating instruments – Measurement of Resistance, Inductance, Capacitance and Frequency – Bridge Measurements – Instrument Transformers-Electronic Measuring Instruments – Multi meters-True RMS meter-Spectrum Analyzer-Power Quality Analyser- Recording Instruments-X-Y Recorder-Magnetic Recorders-Digital Data Recorder-Oscilloscopes-LED and LCD Display-Transducers and their applications to the Measurement of Non-Electrical Quantities like Temperature, Pressure, Flow-rate, Displacement, Acceleration, Noise level — Data Acquisition Systems – A/D and D/A Converters- Data Transmission Systems.
CONTROL SYSTEMS	Mathematical Modelling of Physical Systems – Transfer Function - Block Diagrams and Signal Flow Graphs and their Reduction using Mason’s Rule – Time Domain and Frequency Domain Analysis of Linear Time Invariant (LTI) System – Errors for Different Type of Inputs and Stability Criteria for Feedback Systems – Stability Analysis Using Routh-Hurwitz Array – Nyquist Plot and Bode Plot – Root Locus – Gain and Phase Margin – Basic Concepts of Compensator Design – PI,PD and PID Controllers-State Variable Matrix – System Modeling and Design – Sampled Data System – Stability of Sampled Data System.

Subject Name	Syllabus
ELECTRICAL MACHINES	<p>D.C. Machines – Construction, Excitation methods – Armature Reaction and Commutation – Characteristics and Performance Analysis – Generators and Motors – Starting and Speed Control – Testing – Losses and Efficiency. Transformers-Types-Construction and Operation- Testing – Equivalent Circuits – Losses and Efficiency-All day efficiency – Regulation – Parallel Operation – Three Phase Transformers – Auto-transformer.</p> <p>Induction Machines – Construction, Principle of operation – Rotating Magnetic Field – Performance, Torque-Speed Characteristics, No-load and Blocked Rotor tests, Equivalent Circuit, – Starting and Speed Control – Single-Phase Induction Motors – Linear Induction Motors – Hysteresis Motors – Reluctance Motors. Synchronous Machines – Construction – Operating characteristics and Performance analysis – Efficiency and Voltage regulation – Parallel operation – V and inverted V curves of synchronous motors – Power factor improvement-BLDC Motor.</p>
POWER SYSTEMS	<p>Single Line Diagram of Power System-Per Unit Quantities-Power Generation Types— Hydro, Thermal and Nuclear Stations – Pumped storage plants – Co generation– Economic and operating factors – Modelling and performance characteristics of Power transmission lines and Cables-HVDC transmission–Mechanical Design of Transmission Lines-Sag-Insulators - ZBus and YBus formulation - Load flow studies — Shunt and Series Compensation-Symmetrical and Un symmetrical Faults Analysis - Transient and SteadyState Stability of Power Systems – Equal Area Criterion-Voltage and Frequency Control – Power System Transients – Power System Protection – Circuit Breakers – Relays –AC and DC Distribution</p>
ANALOG AND DIGITAL ELECTRONICS	<p>Semiconductor Devices – PN junctions – Transistors – FET – Zener, Photo diodes and their applications – Rectifier circuits – Voltage regulators – Multipliers. Biasing circuits – Small signal amplifiers – Frequency response – Multistage amplifiers – Coupling methods – Large signal amplifiers – Push-pull amplifiers – Feedback amplifiers – Oscillators – Operational amplifiers and its applications – Precision rectifiers – Multivibrators - Voltage Controlled Oscillator-Timer. Digital logic gate families (DTL,TTL,ECL,MOS,CMOS) – Logic gates - Simplification of Logic Functions- Design of Combination circuits - Sequential logic circuits-latch–Flipflops– Counters – Registers – Memories(ROM,PLA and FPGA).</p>
POWER ELECTRONICS AND DRIVES	<p>Power Semiconductor devices – Ideal and practical attributes of switch - Power DiodeDIAC - SCRs-TRIAC-GTO - power MOSFET-IGBT- Static Characteristics and Principles of Operation- Single and Three Phase AC to DC Converters – Single and Three Phase AC to AC converters –DC to DC Converters (MOSFET and IGBT based) - Single and Three Phase Inverters (MOSFET and IGBT based) - Pulse Width Modulation – Sinusoidal Modulation with Uniform Sampling – Uninterrupted Power Supplies-Switched Mode Power Supplies – Speed Control of DC and AC Motor Drives– Applications of Variable Speed Drives.</p>

Subject Name	Syllabus
<p>DIGITAL PROCESSORS AND COMMUNICATION</p>	<p>Architecture of 8085, 8086 and 8051 – Instruction Sets – Assembly Language Programming – Interfacing for memory and I/O: 8255 Programmable Peripheral Interface – 8253 Programmable Timer Interface – 8279 Programmable Keyboard and Display Interface – 8257 Direct Memory Access Interface - Embedded processors(ARM and PIC basics only). Classification of Signals – Properties of Discrete Fourier Transforms - FFT Computation – FIR Filters – IIR Filters: Butterworth Filters – Chebyshev Filters. Digital Communication Systems: Pulse Code Modulation and Demodulation – Adaptive Delta Modulation - Frequency Division and Time Division Multiplexing – Data Communication Network Topologies - 7-layer OSI Protocol.</p>
<p>RENEWABLE ENERGY SOURCES AND STORAGE DEVICES</p>	<p>Renewable Energy – Sources and Features - Solar Radiation Spectrum - Radiation Measurement-Solar Photovoltaic Cell -Operating Principle- Microhydel - Operating principle- Wind Energy Source- Wind Patterns and Wind Data- Site Selection-Types of Wind Generators-Fuel Cells-Batteries-Super Capacitors.</p>

Syllabus for General Studies (Paper-II)

Subject Name	Syllabus
GENERAL SCIENCE	<p>Physics: Universe-General Scientific laws-Scientific instruments-Inventions and discoveries-National scientific laboratories-Science glossary-Mechanics and properties of matter-Physical quantities, standards and units-Force, motion and energy-Electricity and Magnetism, Electronics and Communication -Heat, light and sound-Atomic and nuclear physics-Solid State Physics – Spectroscopy-Geophysics - Astronomy and space science.</p> <p>Chemistry: Elements and Compounds-Acids, bases and salts-Oxidation and reduction-Chemistry of ores and metals-Carbon, nitrogen and their compounds-Fertilizers, pesticides, insecticides-Biochemistry and biotechnology-Electrochemistry-Polymers and plastics.</p> <p>Botany: Main Concepts of life science-The cell-basic unit of life-Classification of living organism-Nutrition and dietetics-Respiration-Excretion of metabolic waste-Biocommunication.</p> <p>Zoology: Blood and blood circulation-Endocrine system-Reproductive system-Genetics the science of heredity-Environment, ecology, health and hygiene, Bio-diversity and its conservation-Human diseases-Communicable diseases and non-communicable diseases- prevention and remedies- Alcoholism and drug abuse-Animals, plants and human life.</p>
CURRENT EVENTS	<p>History: Latest diary of events – National--National symbols-Profile of States-Defence, national security and terrorism-World organizations-pacts and summits-Eminent persons & places in news-Sports & games-Books & authors -Awards & honours-Cultural panorama Latest historical events - India and its neighbours - Latest terminology- Appointments-who is who?</p> <p>Political Science: 1. India’s foreign policy 2. Latest court verdicts – public opinion 3. Problems in conduct of public elections 4. Political parties and political system in India 5. Public awareness & General administration 6. Role of Voluntary organizations & Govt., 7. Welfare oriented govt. schemes, their utility</p> <p>Geography: Geographical landmarks-Policy on environment and ecology.</p> <p>Economics: Current socio-economic problems-New economic policy & govt. sector.</p> <p>Science: Latest inventions on science & technology-Latest discoveries in Health Science Mass media & communication.</p>
GEOGRAPHY	<p>Earth and Universe - Solar system-Atmosphere hydrosphere, lithosphere - Monsoon, rainfall, weather and climate - Water resources - rivers in India-Soil, minerals & natural resources - Natural vegetation - Forest & wildlife-Agricultural pattern, livestock & fisheries - Transport including Surface transport & communication - Social geography – population - density and distribution-Natural calamities – disaster management-Climate change - impact and consequences - mitigation measures - Pollution Control.</p>

Subject Name	Syllabus
<p>HISTORY AND CULTURE OF INDIA</p>	<p>Pre-historic events -Indus valley civilization-Vedic, Aryan and Sangam age-Maurya dynasty-Buddhism and Jainism-Guptas, Delhi Sultans, Mughals and Marathas-Age of Vijayanagaram and the bahmanis-South Indian history - Culture and Heritage of Tamil people-Advent of European invasion-Expansion and consolidation of British rule - Effect of British rule on socio-economic factors-Social reforms and religious movements - India since independence-Characteristics of Indian culture-Unity in diversity – race, colour, language, custom-India-as secular state-Organizations for fine arts, dance, drama, music Growth of rationalist, Dravidian movement in TN- Political parties and populist schemes Prominent personalities in the various spheres – Arts, Science, literature and Philosophy – Mother Teresa, Swami Vivekananda, Pandit Ravishankar , M.S.Subbulakshmi, Rukmani Arundel and J.Krishnamoorthy etc.</p>
<p>INDIAN POLITY</p>	<p>Constitution of India - Preamble to the constitution- Salient features of constitution- Union, State and territory- Citizenship-rights amend duties- Fundamental rights- Fundamental duties- Human rights charter- Union legislature – Parliament- State executive- State Legislature – assembly- Status of Jammu & Kashmir- Local government – panchayat raj – Tamil Nadu- Judiciary in India – Rule of law/Due process of law- Indian federalism – center – state relations-. Emergency provisions- Civil services in India- Administrative challenges in a welfare state- Complexities of district administration- Elections - Election Commission Union and State. Official language and Schedule-VIII- Amendments to constitution- Schedules to constitution-. Administrative reforms & tribunals- Corruption in public life- Anti-corruption measures – Central Vigilance Commission, lok-adalats, Ombudsman, - Comptroller and Auditor General of India- Right to information - Central and State Commission- Empowerment of women- Voluntary organizations and public grievances Redressal- Consumer protection forms.</p>
<p>INDIAN ECONOMY</p>	<p>Nature of Indian economy-Need for economic planning-Five-year plan models-an assessment-Land reforms & agriculture-Application of science in agriculture Industrial growth-Capital formation and investment-Role of public sector & disinvestment - Development of infrastructure- National income- Public finance & fiscal policy- Price policy & public distribution- Banking, money & monetary policy- Role of Foreign Direct Investment (FDI)- WTO-globalization & privatization- Rural welfare oriented programmes Social sector problems – population, education, health, employment, poverty-HRD – sustainable economic growth- Economic trends in Tamil Nadu -Energy Different sources and development- Finance Commission -Planning Commission- National Development Council.</p>

Subject Name	Syllabus
INDIAN NATIONAL MOVEMENT	National renaissance-Early uprising against British rule-1857 Revolt- Indian National Congress-Emergence of national leaders-Gandhi, Nehru, Tagore, Nethaji - Growth of militant movements -Different modes of agitations-Era of different Acts & Pacts-World war & final phase struggle-Communalism led to partition-Role of Tamil Nadu in freedom struggle - Rajaji, VOC, Periyar, Bharathiar & Others-Birth of political parties /political system in India since independence.
APTITUDE AND MENTAL ABILITY TESTS	Conversion of information to data-Collection, compilation and presentation of data - Tables, graphs, diagrams-Parametric representation of data-Analytical interpretation of data -Simplification-Percentage-Highest Common Factor (HCF)- Lowest Common Multiple (LCM)-Ratio and Proportion-Simple interest-Compound interest-Area-Volume-Time and Work-Behavioural ability -Basic terms, Communications in information technology-Application of Information and Communication Technology (ICT)- Decision making and problem solving-Logical Reasoning-Puzzles-Dice-Visual Reasoning-Alpha numeric Reasoning-Number Series-Logical Number/Alphabetical/Diagrammatic Sequences.