

ARIHANT ENGINEERING ACADEMY

UPPSC-AE

(UTTAR PRADESH PUBLIC SERVICE
COMMISSION – ASSISTANT ENGINEER)

ONLINE TEST SERIES

ELECTRICAL ENGINEERING - SCHEDULE

No. of Tests:- 20	
Full Length Mock Tests	20

- All tests will be activating as per the date and valid up to the exam.

Visit :- www.arihantacademy.co.in , M- 9090466826 / 8480933571

www.arihantexams.in

Syllabus

Paper – I

Networks and Systems: Steady- state and Transient –state Analysis of systems, Thevenin's-, Norton's-, Superposition- and Maximum Power Transfer-theorems, Driving point Transfer functions, Two-port networks, Laplace and Fourier transforms and their applications in Network analysis, Z-transforms for discrete systems, R-L, R-C & L-C network synthesis.

E.M. Theory: Analysis of electrostatic and magneto static fields, Laplace, Poisson and Maxwell equations, solution of boundary value problems, electromagnetic wave propagation, ground and space waves, Propagation between Earth Station and Satellites. **Control systems:** Mathematical modeling of dynamic line are continuous systems, Block diagrams and Signal flow graphs, time-response specifications, steady-state error, Routh-Hurwitz criterion, Nyquist techniques, Root Loci, Bode Plots, Polar Plot, and stability analysis, Lag-,Lead-,Lag-Lead-compensation, state- space modelling, state transition matrix, controllability and observability.

Elements of Electronics: Basics of semi conductor diodes, BJT, FET and their characteristics, different types of transistors and FET amplifiers equivalent circuits and frequency response, feedback oscillators, colpitts oscillator and Hartley Oscillator, Operational amplifiers-characteristics and applications.

Power System Analysis and Design: Line parameters and calculations, Performance of Transmission lines, Mechanical design of overhead lines and Insulators, Corona and radio interference Parameters of single- and three-core Cables, Bus admittance matrix, Load flow equation and methods of solutions, Fast-decoupled load flow, Balance- and Unbalanced-faults analysis, Power system stability, Power system transients and travelling Waves, EHV Transmission, HVDC transmission, Concepts of FACTS, Voltage Control and Economic operation, Concepts of distributed generation, solar and wind power, smart grid concepts.

Elements of Electrical Machines:- General concepts of E.m.f., m.m.f., and torque in rotating machines, DC Machines: motor and generator characteristics, equivalent circuits, commutation and armature reaction, starting and speed controls of motors; Synchronous Machines: performance, regulation, Parallel operation of generators, motor starting, characteristics and applications, Transformers: phasor- diagram and equivalent circuit efficiency, and voltage regulation, auto-transformers, 3-phase transformers. **Measurement:** Basic methods of measurement, Precision and standards, error analysis, Bridges and Potentiometers; moving coil, Moving iron, dynamometer and induction type instruments, measurement of voltage, current, power, energy, and power factor, Instrument transformers, digital voltmeters and multi meters, phase-,time-and frequency-measurement, Q-meters Oscilloscopes, Basics of sensors, and data acquisition system, Instrumentation systems for pressure and temperature measurements.

PAPER – II

Power Electronics and Drives: Semiconductor, power, diodes, transistors, thyristors, triacs, GTOs, MOSFETs and IGBTs static characteristics and principles of operation, triggering circuits single phase and three phase controlled rectifiers-fully controlled and half controlled, smoothing and filters regulated power supplies, DC-DC choppers and inverters, speed control circuits for DC and A.C. drives, Basics of electric drives: types, quadrant operation, reversing

pg. 1

and braking of electric motors, estimation of power ratings, traction motors.

Digital Electronics: Boolean algebra, logic gates, combinational and sequential logic circuits, multiplexers, multi vibrators, sample and hold circuits, A/D and D/A converters, basics of filter circuits and applications, active filters, semi conductor memories.

Microwaves and Communication systems: Electromagnetic wave in guided media, wave guide components, resonators, microwave tubes, microwave generators and amplifiers.

Analog Communication basics: modulation and demodulation, noise and band width, transmitters and receivers, signal tonoiseratio, digital communication basics, sampling, quantizing, coding frequency- and time-domain multiplexing, sound and vision broadcast, antennas, transmission lines at audio and ultra-high frequencies.

Induction and special Machines: Three-phase Induction motors Rotating magnetic field, Torque-slip characteristics, Equivalent Circuit and determination of its parameters, starters, speed control, Induction generators. Single phase Induction motors: Theory and phasor diagrams, characteristics, starting and applications, repulsion motor, series motor:

E.m.f. equation and phasor diagram and performance, servomotors, stepper motors, reluctance motors, brushless DC motors (BLDC).

Power system protection and Switch gear: Methods of Arc Extinction, Re striking voltages and recovery voltage, testing of circuit breakers, Protective relays, protective schemes for power system equipment, surges in transmission lines and protection.

Numerical Methods: Solution of non-linear algebraic equations, single and multi steps methods for solution of differential equations.

Electrical Engineering Materials: Crystal structure and defects, conducting, insulating and magneting Materials, super-conductors.

Elements of Micro processors: Data representation and representation of integer and floating point-numbers. Organization and programming of a microprocessor, ROM and RAM memories CPU of a microcomputer, interfacing memory and I/O devices, Programmable peripheral and communication interface. Application of micro processors.

UPPSC – AE Online Test Series

Test Packages

S. No	Test series Title	Stream	Total Test	Price
1	UPPSC – AE Prelims Online Test Series	EE	20	1000/-

Test Details

S. No	Test Name	Test Type	Subject/ Syllabus	Tests	Questions	Marks	Duration	Total Tests	Total Questions
1	UPPSC – AE	Full Length Mock Tests	Full Syllabus	20	125	375	150 Minutes	20	2500

Test Schedule**UPPSC - AE****UPPSC – AE 2021 Prelims Online Test Series Schedule****Electrical Engineering**

Test No./Name	Start Date	End Date	Subjects/ Topic Covered	No. of Questions	Total Marks	Total Time	Minus Marks
Full Length Test -01 (P1)	01.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 02 (P2)	01.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -03 (P1)	05.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 04 (P2)	05.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -05 (P1)	08.12.20	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 06 (P2)	08.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -07 (P1)	12.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 08 (P2)	12.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -09 (P1)	19.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks

Full Length Test – 10 (P2)	19.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -11 (P1)	26.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 12 (P2)	26.12.2021	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -13 (P1)	02.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -14 (P2)	02.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -15 (P1)	09.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -16 (P2)	09.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test -17 (P1)	16.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 18 (P2)	16.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 19 (P1)	19.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + Hindi) (100 + 25)	125	375	150	1/3 Marks
Full Length Test – 20 (P2)	19.01.2022	Till UPPSC - AE 2022 Prelims Exam	Full Syllabus (Tech + GS) (100 + 25)	125	375	150	1/3 Marks