

13. FACILITATION COUNTER :-

For any technical guidance on filling up of online application form, the candidates may contact facilitation counter of O.C.A.C. over Toll Free No.18003456770 or 155335 between 10.30.A.M. to 1.30 P.M. and 2.00 P.M. to 5.00 P.M. on any Odisha Government working day.

Regarding difficulty in payment of fee, if any, the candidates may contact **SBI** over **Telephone No.0671-2368267 and 9437039604.**

In case of any guidance/information on this advertisement and recruitment, candidates may contact the O.P.S.C. Facilitation Counter over telephone No.0671-2304141/2305611 on any working day between 10.30 A.M. to 1.30 P.M. & 2.00 P.M. to 5.00 P.M.


The candidates are required to visit the website of the Commission at <http://opsc.gov.in> for detailed information about the programme of the viva voce test, notice regarding rejection of applications; other important notices etc. and also keep track of publication of various notices to the effect in the leading local daily news papers for information.

Closing Dates

- (a) ON LINE APPLICATIONS SHALL BE AVAILABLE IN THE WEBSITE FROM 09.10.2019 TO 08.11.2019 TILL 11.59 P.M.
- (b) LAST DATE FOR RECEIPT OF APPLICATION FEE AT ANY S.B.I. BRANCH IS 14.11.2019.

NB:- THE ONLINE APPLICATION FORM IF FOUND DEFECTIVE IN ANY RESPECT IS LIABLE TO BE SUMMARILY REJECTED. THE CANDIDATES ARE ADVISED TO BE CAREFUL WHILE FILING THE ONLINE APPLICATION FORM. ANY MISREPRESENTATION IN THE ONLINE APPLICATION SHALL BE LIABLE FOR REJECTION WITHOUT MAKING ANY CORRESPONDENCE ON THAT SCORE.

CUTTACK
DATE: 29.09.19


29/9/19
SECRETARY
ODISHA PUBLIC SERVICE COMMISSION,
CUTTACK.

ANNEXURE-A

Syllabus for the Recruitment to the post of Assistant Executive Engineer (Electrical) in Group-A.

Electrical Engineering Paper-I

1. Electrical Machines:

Single phase transformer – equivalent circuit, phasor diagram, tests, regulation and efficiency; three phase transformers – connections, parallel operation; auto-transformer & three winding transformer; principles of energy conversion; Windings of rotating Machines; DC Generators & Motors- Characteristics, starting and speed control, Armature Reaction and Commutation; Three phase Induction Motors – performance characteristics, starting and speed control; single phase Induction Motors; Synchronous Generators – performance, regulation, parallel operation; Synchronous Motors – starting, characteristics, applications, synchronous condensers; fractional horse power motors; permanent magnet and stepper motors.

2. Electrical Circuits:

Network Graph, KCL, KVL, Node/Cut Sets, Mesh/Tie Sets Analysis, Sinusoidal Steady State Analysis; Transient Response of DC and AC Networks; Resonance in Electrical Circuits; Concepts of Ideal voltage and Current Sources; Network Theorems; Driving Point Impedance and Admittance and Transfer Functions of Two Port Network; Elementary concepts filters; three phase circuits; Fourier Series and Laplace Transform Methods for solving Electrical Networks; Two elements Network Synthesis.

3. Control Systems:

Mathematical Modelling of Physical Systems; Block Diagram and Signal flow graphs and their reduction; Time domain and frequency domain analysis of linear dynamical systems; Error for different types of inputs and stability criteria for feedback systems; Stability analysis using Routh-Hurwitz array, Nyquist Plot and Bode Plot, Root Locus and Nichols Chart and the Estimation of Gain and Phase margin; Basic Concepts of Compensator Design; State variable Matrix and its uses in System Modelling and Design; Sample data system and performance of such a system with the samples in the error channel; stability of sampled data system elements of non-linear control analysis; Control System Components – Electromechanical, Hydraulic, Pneumatic components.

4. Measurement & Instrumentation:

Bridges and potentiometer, PMMC, Moving Iron, Dynamometer and Induction Type Instruments; Measurement of Voltage, Current, Power; Energy and Power factor; Instrument Transformers; Digital Voltmeter and Multimeter; Phase, Time and Frequency Measurements; Q-Meter, Oscilloscope, Potentiometric Recorders, Error Analysis; transducers and their applications to the measurement of non-electrical quantities like; temperature, pressure, flow-rate, displacement, acceleration, noise level etc., Data Acquisition system; A/D and D/A converters.

5. Electromagnetic Theory:

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 distribution, Effects of dielectric medium, Capacitance of simple configurations, Biot-Savart's law, Ampere's law, Curl, Faraday's law, Lorentz force, Inductance, Magnetomotive force, Reluctance, Magnetic circuits, Self and Mutual inductance of simple configurations.

(Contd...)

Electrical Engineering Paper-II

1. Power Systems:

Electric Power Generation – Thermal, Hydro, Nuclear – Economics and operating Factors; Transmission line parameters; Steady state performance of overhead Transmission line and Cables and Surge propagation; Distribution System; Insulators, Bundle Conductors, Corona and Radio Interference Effects; Per Unit quantities; Bus Admittance and Impedance matrices; Load Flows; Voltage Control and Power factor corrections; Economic Operation; Symmetrical Components; Analysis of symmetrical and Unsymmetrical faults; principle of over current, differential and distance protection; concept of solid state relays and digital protection; Circuit Breakers; Concept of Stability – swing Curves and Equal Area criterion; Basic concept of HDVC transmission and FACTS Devices.

2. Power Electronics & Electric Drivers:

Semiconductor Power Devices – Diodes, Transistors, Thyristors, Triacs, GTOs, MOSFETs and IGBTs – Static Characteristics and principle of operations; Triggering DC-DC Converters– Single Buck Phase Converters, and Three Phase half controlled and full controlled Bridge Rectifier's, Boost Converter, Buck-Boost Converter, Single phase and three phase Inverters, Pulse Width Modulation Techniques; basic Concept of adjustable DC and AC Drivers.

3. Engineering Mathematics:

Matrix theory, Eigen values & Eigen vectors, system of linear equations, Numerical methods for solution of non-linear algebraic equations and differential equations, integral calculus, partial derivatives, maxima, and minima, Line, Surface and Volume Integrals, Fourier series, linear, non-linear and partial differential equations, initial and boundary value problems, complex variables, Taylor's and Laurent's series, residue theorem, probability and statistics fundamentals, Sampling theorem, random variables, Normal and poisson distributions, correlation and regression analysis.

4. Analog and Digital Electronic Circuits:

Semiconductor Device Physics, P-N junctions and transistors- circuit models and parameters; FET, Zener, Tunnel, Schottky, Photo Diodes and their applications; Rectifier circuits; voltage regulators and multipliers; switching behaviour of diodes and transistors; small signal amplifiers-biasing circuits, frequency response and improvement; multistage amplifiers and feedback amplifiers; DC amplifiers; Wave shaping circuits; Multivibrators and Flip Flops and their applications; Digital logic gate families, Universal Gates; Combination circuits for arithmetic and logic operations; Sequential logic circuits; Counter and registers; RAM and ROMs.

5. Signal and Systems:

Representation of continuous and discrete-time signals, shifting and scaling operations, Linear Time Invariant and Casual systems, Fourier Series representation of continuous periodic signals, Sampling theorem, Applications of fourier Transform, Laplace Transform and z-Transform.

A. Electrical Engineering Paper-I

1. Electrical Machines	40
2. Electrical Circuits	40
3. Control Systems	40
4. Measurement & Instrumentation	30
5. Electromagnetic Theory	30
Total No. of Questions	180

B. Electrical Engineering Paper-II

1. Power Systems	40
2. Power Electronic & Electric Drivers	40
3. Engineering Mathematics	40
4. Analog & Digital Electronic Circuits	30
5. Signal and Systems	30
Total No. of Questions	180