অসম লোকসেৱা আয়োগ
ASSAM PUBLIC SERVICE COMMISSION
Jawaharnagar, Khanapara, Guwahati-781022.

SYLLABUS

Junior Manager (Electrical) in Assam Power Generation Corporation Limited (APGCL)
(ADVT. NO. 12/2023 dated 25th April, 2023)

Paper-I

Electrical Engineering

(Multiple Choice Question Type)
(Diploma Course Standard)

Full Marks: 100 Marks **Time:** 2-00 hours

Basic Electrical Engineering: Laws of electricity, Ohms law, Kirchoff's law, Faraday's law, left hand rule, Thevenin's & Norton's theorems. Maximum power transfer theorem. EMF. Network analysis Loop & Node Analysis, Voltage Source, Current source. Resistance, Inductance Capacitance, Impedance and Reactance. Magnetic circuits: MMF, Flux, Reluctance Susceptance, Electromagnetic induction, Eddy currents, basics of transformer generator and motor. Electrical measuring instruments: PMMC & MI meters. Wattmeter and Energy meter, Basics of electronics: Semiconductors, Diodes and Rectifiers.

Electrical Circuits: Phasors and phasor algebra, balanced and unbalanced poly-phase circuit, Test signals, Star-Delta transformation, Network theorems, Parameters of electromagnetic circuits, resonance in R-L-C Series and Parallel circuits, Network analysis by mesh and node methods.

Electrical Engineering Materials: Conducting, Insulating materials and Magnetic materials, Properties and applications.

Electrical Instruments and Measurements: Principles of measurements: Classification, accuracy and sensitivity, damping and control forces, shunt and multiplier, Measurement of resistance: Low, medium and high. Principle and uses of DC potentiometers, AC Bridges. Indicating instruments: Multimeter, PF meters, synchroscope.

Electrical Machines: Classification of D.C. machines: Constructional features, e.m.f. torque, excitations, motor performance, speed, power, size considerations, speed control, efficiency.

Transformers: Induced e.m.f. equivalent circuits, regulation, different efficiencies. Three phase induction machines: Torque characteristics, Starting, equivalent Circuits. Three Phase Synchronous Machines: Generation, voltage regulation, parallel operation, synchronous motor, starting and V-curves, Single phase motors: type, starting characteristics.

Generation, Transmission and Distribution:

Generation: Thermal, Hydel and Nuclear Power Stations, Prime movers and alternators.

Transmission: Voltage levels, line conductors, electrical line parameters of short and medium lines, voltage regulation, corona. Distribution: D.C. and A.C. systems, voltage level, types of distribution feeders and distributors, voltage drop and effects, power factor improvement plant.

Substation: Different types, site selection, equipments, electrical earthing. Switchgear: Switches, isolators, circuit breakers and their types. Protection: Fault current and protective devices, fuses, relay functions, alternator, Transformer protection, thermal relays, over voltage-causes, effect and protective devices.

Electrical Estimation and Costing: Estimation of materials for industrial and residential installations. UPS and small diesel generating-set and accessories. Cost estimation of materials and selection criteria, Design and calculation of the cost of 400V/230V three phase 4 wire, 100-500 KW overhead line, Tenders.

Electrical Power Utilization: Design of lighting system. Electrical Heating: Resistance heating, Induction heating, Arc heating and Dielectric heating, types of electric welding Electrochemical process: Principles, equipment and procedure. Electrical Drives: Characteristics of various electric drives, speed control, starting and breaking, mechanical consideration, selection of motors.

Power Electronics: Power diodes and Darlington Pair. Thyristor: Principle, thyristor family, firing circuits, applications, Selenium rectifiers, uncontrolled and controlled rectification, Power MOSFETS.

Digital Electronics: Digital signals, gates, Boolean algebra, logic families, multiplexures / demultiplexure, Encoders/decoders, flip flops, registers, counters and applications of logic gates, OPAMPS in timing circuits, A/D and D/A conversion.

Computer Programming: Concept of low level and high level languages, Block-diagram, concept of flow chart, and algorithm, Assemblers, Macros, sub-routines, co-routines, loaders, linkers, editors and compilers, programming and file handling in C and C++.

Controller of Examinations
Assam Public Service Commission
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SYLLABUS

Recruitment to the post of Junior Manager (Electrical / Mechanical / IT / Instrumentation) under Assam Power Generation Corporation Limited (APGCL)

(Advt. No. 12/2023 dated 25/04/2023)

PAPER – II
GENERAL STUDIES
(Multiple Choice Question Type)

Full Marks: 100 Marks | Time: 2-00 hours

Subject	Topics	No. of Questions	Marks
General English	Sentence Completion, sentence improvement, ordering of words in a sentence, spotting errors, synonyms and antonyms, Idioms and phrases, fill in the blanks, word groups etc.	25	25
General Aptitude & Emotional Intelligence	Time and distance; Series, Analogy, Statement, Direction; Verbal and non-verbal reasoning etc. Understanding Emotional Intelligence, Personality and EQ, The Ability Model of EI, The Trait Model of EI, The Mixed Model of Emotional Intelligence, The Bar-On Model of Emotional Social Intelligence and the Genos Model, Criticism of the Theoretical Foundation and Measures of Assessment of Emotional Intelligence, Emotional Intelligence, Personality Disorders, and Individuals on the Autism Spectrum, EQ and Personal Relationships, Emotional Intelligence in the Workplace, Improving your Emotional Intelligence.	50	50
General Knowledge	Current Affairs (National and International); Who's Who; Sports; Books and Authors; Awards and Honours; Science – Inventions and Discoveries; Abbreviations; Important Days etc.	25	25

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