

# COAL INDIA LIMITED (CIL)

Management Trainees

# 

## ELECTRICAL ENGINEERING

## No. of Tests : 6

Full Length Mock Tests

6

All tests will be available till 28th February 2020

### **TEST SERIES HIGHLIGHTS**

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

### **Full Length Mock Tests**

Test No	Mock codes	No. of Questions	Max Marks	Duration	Date of Activation
Test-01	Full Length Mock Test-1 (Paper-I + Paper-II)	200	200	3 hours	10-01-2020
Test-02	Full Length Mock Test-2 (Paper-I + Paper-II)	200	200	3 hours	16-01-2020
Test-03	Full Length Mock Test-3 (Paper-I + Paper-II)	200	200	3 hours	23-01-2020
Test-04	Full Length Mock Test-4 (Paper-I + Paper-II)	200	200	3 hours	30-01-2020
Test-05	Full Length Mock Test-5 (Paper-I + Paper-II)	200	200	3 hours	06-02-2020
Test-06	Full Length Mock Test-6 (Paper-I + Paper-II)	200	200	3 hours	13-02-2020

#### Note:

The Syllabus considered as per previous Notification of COAL INDIA. ACE Engineering Academy does not take any responsibility for deviations in syllabus in the final Coal India exam. As per Notification of Coal India each question carries '1' mark and there is no negative marks for wrong answer.

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

Paper-I_Syllabus		
Subject Name	Syllabus	
General Knowledge/ awareness	Everyday Science, Scientific Research, Sports, Indian Culture, Indian History, Indian national movement, World & Indian Geography, Natural resources Indian Economy, Indian Polity, Indian COnstitutiOn,NatiOnal & International current affairs, Environment, India's Agriculture, Trade & Commerce, Basic Information technology.	
Reasoning	Analogies, similarities and differences, space Visualization, spatial orientation, problem solving, analysis, judgement, decision making, Visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non- verbal series, coding and decoding, Word Building statement conclusion, syllogistic reasoning ,puzzle, Venn Diagrams , Space Visualization , Symbolic/Number Classification, Figural Classification etc.	
Numerical ability	Number System, decimals, fractiOns and relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra, , Factor, Heights and Distances. AP. & G.P. Series	
General English	Error recognition, fill in the blanks (verbs,PrepOsitiOn etc.) synonyms, antonyms, spelling/detecting Mis—spelt words, idioms & phrases, one word substitution, sentences structure, Sentence completion, shuffling of sentence parts, shuffling of sentences in a passage, comprehension passage	

Paper-II_Syllabus			
Subject Name	Syllabus		
Electric Circuits	Network graph, KCL, KVL, Node and Mesh analysis, Transient response of dc and ac networks, Sinusoidal steady-state analysis, Resonance, Passive filters, Ideal current and Volatage sources.Thevenin's Theorem, Norton's theorem ,Superposition theorem,Maximum power transfer theorem, Two-port networks, Three phase circuits, Power and power factor in ac circuit.		
Electromagnetic 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, Biot-Savart's law,Amper's law, Curl, Farady's laws, Lorentz force, Inductance, Magnetomotive force,Reluctance, Magnetic circuits,Self and Mutual inductance of simple configurations.		
Signals and Systems	Representation of continuous and discrete-time signals, Shifting and scaling operations, Linear Time Invariant and Causal systems, Fourier series representation of continuous periodic signals, Sampling theorem, Applications of Fourier Transform, Laplace Transform and z-Transform.		
Electrical Machines	Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, parallel operation; Auto-transformer, Electromechanical energy conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, starting and speed control of dc motors; Three phase induction motors: principle of operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control; Operating principle of single phase induction motors; Synchronous machines: cylindrical and salient pole machines, performance, regulation and parallel operation of generators, starting of synchronous motor, characteristics; Types of losses and efficiency calculations of electric machines.		
Power Systems	Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, GaussSeidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over-current, differential and distance protection; Circuit breakers,System stability concepts, Equal area criterion.		
Control Systems	Mathematical modeling and representation of systems, Feedback principle, transfer function, Block diagrams and Signal flow graphs, Transient and Steady-state analysis of linear time invariant systems, Routh-Hurwitz and Nyquist criteria, Bode plots, Root loci,Stability analysis, Lag, Lead and Lead-Lag compensators; P, PI and PID controllers; State space model, State transition matrix.		
Electrical and Electronic Measurements	Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis.		
Analog and Digital Electronics	Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response; Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers, Combinational and Sequential logic circuits, Multiplexer, Demultiplexer, Schmitt trigger, Sample and hold circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and Interfacing.		
Power Electronics	Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation.		