

**NMDC Junior Officer (Mining, Electrical, Mechanical) Trainee
Syllabus, Exam Pattern 2018**

NMDC Junior Officer Exam Pattern 2018

Type of Exam	Subjects	Total No. of Marks	Time Duration
Written Test	Subject Knowledge (on specific branch)	30	2 hours
	General Knowledge	50	
	Numerical & Reasoning Ability	20	
Total		100 Marks	

Numerical Ability:

- Number Series
- Approximation and Simplification
- Data Sufficiency
- Profit and Loss
- SI& CI
- Problem on Ages
- Work and Time
- Speed Distance and Time
- Probability
- Permutation and Combination
- Average
- Ratio and Proportion
- Partnership
- Boats and Stream
- Problems on Trains
- Mixture and Allegation
- Pipes and Cisterns
- Problems on L.C.M and H.C.F.
- Compound Interest.
- Numbers and Ages
- Boats and Streams.
- Indices and Surds.
- Simplification and Approximation.
- Problems on Numbers.
- Odd Man Out.
- Compound Interest.
- Simple Equations.
- Numbers and Ages.

- Ratio and Proportion.
- Quadratic Equations.
- Bar & Graphs,
- Line charts, Tables
- Pipes and Cisterns.
- Simple Interest.
- Time and Work Partnership
- Simplification and Approximation.

Reasoning Ability

- Puzzles
- Seating Arrangements
- Direction Sense
- Blood Relation
- Syllogism
- Order and Ranking
- Coding-Decoding
- Machine Input-Output
- Inequalities
- Alpha-Numeric-Symbol Series
- Data Sufficiency
- Logical Reasoning (Passage Inference, Statement and Assumption, Conclusion,
- Number Series.
- Letter and Symbol Series.
- Verbal Classification.
- Essential Part.
- Analogies.
- Artificial Language.
- Matching Definitions
- Making Judgments
- Logical Problems
- Statement and Conclusion
- Theme Detection
- Cause and Effect
- Statement and Argument
- Logical Deduction
- Verbal Reasoning
- Analogy, Classification
- Word formation
- Statement and conclusions Syllogism
- Statement and assumptions
- Statement and arguments
- Coding Decoding
- Blood Relations
- Passage and conclusions

- Alphabet test
- Series Test
- Ranking and time sequence
- Direction sense Test
- Decision making test
- Figure series
- Input/output
- Assertion and reasoning
- Sitting Arrangement
- Non-Verbal Reasoning
- Series test
- Odd figure Out
- Analogy

NMDC Junior Office (Mech) Syllabus 2018

- Fluid Mechanics
- Thermodynamics
- Heat Engines.
- Automobile Engineering.
- Manufacturing Technology.
- The Strength of Materials.
- Theory of Machines.
- Structural Engineering.
- Hydraulics.
- Industrial Engineering & Management
- Hand & Power Tools.
- Systems of Measurement.
- Fasteners.
- Cutting tools.
- Limits, Fits & Tolerances.
- Drilling machine.
- Taps and Dies.
- Sheet Metal.
- Welding processes.
- Introduction to Hydraulics & Pneumatics.
- Introduction to Engine.
- Diesel Engine Components.
- Valves & Valve Trains.
- Engine Assembly.
- Need for Cooling systems.
- Basic cooling system components.
- Need for lubrication system.
- Intake & exhaust systems.
- Intake system components.

- Exhaust system components.
- Diesel Fuel Systems.
- Diesel fuel system components.
- Electronic Diesel control.
- Marine & Stationary Engine.
- Emission Control.
- Troubleshooting.
- Prepare profile with an appropriate accuracy as per drawing.
- Manufacture different hand tools by forging and heat treat the same.
- Manufacture simple sheet metal items and join by soldering.
- Join MS sheet by riveting.
- Join mechanical components/metal parts by Arc welding.
- Cut and join M.S. parts with Gas welding.
- Repair and assemble simple machine parts from the blueprint and rectify faults of assembly.
- Join MS sheets by Gas welding in different positions.
- Weld different types of MS pipe joints by SMAW.
- Heat-Transfer
- Thermodynamics
- Power Engineering
- Turbo-machinery
- Engineering Materials
- Engineering Mechanics
- Mechanics of Materials
- Vibrations
- Machine Design
- Theory of Machines
- Fluid Mechanics
- Machining and Machine Tool Operations
- Operations Research
- Computer Integrated Manufacturing
- IC Engines
- Refrigeration and air-conditioning
- Production Planning and Control
- Casting, Forming and Joining Processes
- Metrology and Inspection
- Inventory Control

NMDC Junior Officer Syllabus 2018– Electrical (Trainee)

- Electrical and Electronic Measurements
- Analog and Digital Electronics
- Electric Circuits and Fields
- Signals and Systems

- Electrical Machines
- Power Systems
- Control Systems
- Power Electronics and Drives
- Implementation in shop floor of the various safety measures.
- Visit different sections of the Institute Demonstration on elementary first aid.
- Artificial Respiration.
- Demonstration of Trade hand tools.
- Identification of simple types- screws, nuts & bolts, chassis, clamps, rivets etc.
- Use, care & maintenance of various hand tools.
- Practice in soldering Measurement of Resistant and Measurement of specific Resistant.
- Routine care & Maintenance of Batteries.
- Types of drills description & drilling machines, proper use, care and maintenance.
- Description of taps & dies, types in rivets & riveted joints.
- Use of thread gauge.
- Connection of Calling Bell, Buzzer, Alarms, Electric Iron, Heater, Light.
- Rewinding /assembly of different electrical appliances.
- Study, maintenance and repair of domestic equipment –Electric Kettle, Heater /Immersion Heater, Hot Plate, Geyser, Washing machine, Cooking range, Pump set.

NMDC Junior Officer Syllabus 2018– (Trainee) Mining

- Mine Gases.
- Anemometer, & Multi-Gas Detector.
- Use of Blasting Cards.
- Handing over & Taking over Charge.
- Dealing with Occurrence of Fire, Gas, Air-Blast or Inundation in Mines.
- Safety Provisions and Precautions in Underground transportation.
- Detection & Removal of inflammable and toxic gasses in Mines.
- Explosives and Accessories & their use in Mines.
- Mining Methods.
- Use of Equipment such as Methanometer.
- Mine Ventilation.
- Coal Mines Regulations, 1957 related to Mining Sirdar and Shot-firers.
- Surveying
- Drawing
- Engineering Graphics
- Applied Science
- Applied Mathematics
- Basics of Electrical & Electronics Engg. (Mining)
- Mining Geology
- Introduction to Mining
- Mining Practice
- Mine Development
- Mine Methods
- Basic Computer Skills

- U/G Metalliferous Mining
- Surface Mining
- Mechanical Technology (Mining)
- Industrial Training in Underground Mines (Module I)
- Mine Environmental Engg.
- Coal Mining
- Blasting Techniques in Mines
- Mine Surveying Practice
- Computer Application in Mining
- Mineral Recovery
- Mine Machinery
- CASP
- Mine Legislation & General Safety
- Rock Mechanics & Ground Control
- Basic Management Skills & Indian Constitution

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