



# Haryana Public Service Commission

Bays No. 1-10, Block-B, Sector-4, Panchkula

## ANNOUNCEMENT

The Commission has decided that there will be a recruitment test for the post of Assistant Mining Engineer (Group-B) in Mines and Geology Department, Haryana in response to advertisement No. 9/2023 dated 02.02.2023. The Commission has decided as under:-

### Scheme/Pattern of Exam:-

#### 1. Screening Test

- a) Total number of MCQs: 100

Bulk of the questions will be from the concerned subjects as per syllabus enclosed. Rest of the questions will be from the topics of General Awareness, General Mental Ability, Comprehension, Logical Reasoning and Analytical Ability, Decision making and problem solving, Basic numeracy, Data interpretation and the questions related to History, Geography, Polity, Economy and Culture of Haryana.

- b) Total Marks: 100

- c) Time duration of the exam: 02 hours

- d) All questions carry equal marks.

- e) Each question will have five options. The fifth option will be meant for a situation where a candidate intends to leave the question un-attempted.

- f) One-fourth mark will be deducted for each wrong answer.

- g) In case, a candidate neither attempts a question nor darkens the fifth option/ bubble, then One-fourth mark will be deducted for each such question.

- h) The medium of Exam will be English.

- i) A candidate will have to secure a minimum of 25% marks to clear the screening test.

- j) Candidates four times the number of advertised posts, category-wise, will be called for the next stage of selection process, provided that they have secured the minimum cut-off marks of 25%.

- k) The marks obtained by the candidates in the screening test will not be counted for final selection because it is meant only for shortlisting of category-wise candidates.


**2. Subject Knowledge Test**

- a) Time duration of exam: 03 hours
- b) Syllabus is enclosed.
- c) The medium of Exam will be English.
- d) Total Marks: 150
- e) Paper will be subjective type.
- f) No candidate will be called for the interview/viva-voce test unless she/he secures a minimum of 35% marks in the test.
- g) The numbers of the candidates called for interview will be two times, including bracketed candidates if any, of the number of category-wise advertised posts provided that they have secured the minimum cut-off marks of 35%
- h) The weightage of the Subject Knowledge Test will be 87.5%

**3. Third Stage of Examination:- Interview**

- a) The weightage of the interview will be 12.5%
4. The final merit list will be prepared by adding the marks of Subject Knowledge Test and interview.

Dated:- 17.7.2023

  
Secretary

Haryana Public Service Commission  
Panchkula

## **SYLLABUS FOR WRITTEN EXAMINATION FOR ASSISTANT MINING ENGINEER (GROUP-B) IN MINES & GEOLOGY DEPARTMENT, HARYANA.**

### **Section 1: Mining Geology, Mine Development and Surveying:**

Mining Geology: Minerals, Rocks and their Origin, Classification, Ore Genesis; Structural Geology.

Mine Development: Methods of access to deposits; Underground drivages; Drilling method and machines; Explosives and energetics, blasting devices, blast design practices; Rock-Tool Interaction applicable to mechanical cutting systems and their selection.

Mine Surveying: Levels and levelling, theodolite, tacheometry, triangulation; Contouring; Errors and adjustments; Correlation; Underground surveying; Curves; Photogrammetry; EDM, Total Station, GPS, Basics of GIS and remote sensing.

### **Section 2: Geomechanics and Ground Control:**

Engineering Mechanics: Equivalent force systems; Equations of equilibrium; Two dimensional frames and trusses; Free body diagrams; Friction forces; Particle kinematics and dynamics; Beam analysis.

Geomechanics: Geo-technical properties of rocks; Rock mass classification; Instrumentation and in-situ stress measurement techniques; Theories of rock failure; Ground vibrations; Stress distribution around mine openings; Subsidence; Slope stability.

Ground Control: Design of pillars; Roof supporting systems; Mine filling. Strata Control and Monitoring Plan.

### **Section 3: Mining Methods and Machinery:**

Mining Methods: Surface mining: layout, development, loading, transportation and mechanization, continuous surface mining systems; highwall mining; Underground coal mining: bord and pillar systems, room and pillar mining, longwall mining, thick seam mining methods, Underground metal mining: open, supported and caved stoping methods, stope mechanization, ore handling systems.

Mining Machinery: Generation and transmission of mechanical, hydraulic and pneumatic power; Materials handling: wire ropes, haulages, conveyors, face and development machinery, hoisting systems, pumps; comminution methods and machinery.

### **Section 4: Surface Environment, Mine Ventilation and Underground Hazards:**

Surface Environment: Air, water and soil pollution: Standards of quality, causes and dispersion of contamination and control; Noise pollution and control; Land reclamation; EIA.

Mine Ventilation: Underground atmosphere; Heat load sources and thermal environment, air cooling; Mechanics of airflow, distribution, natural and mechanical ventilation; Mine fans and usage; Auxiliary ventilation; Ventilation survey and planning; Ventilation networks.

Underground Hazards: Mine Gases, Methane drainage; Underground hazards from fires, explosions, dust and inundation; Rescue apparatus and practices; Safety management plan; Accident data analysis; assessment; Mine lighting; Mine legislation; Occupational health and safety.

### **Section 5: Mineral Economics, Mine Planning, Systems Engineering:**

Mineral Economics: Mineral resource classification; Discounted cash flow analysis; Mine valuation; Mineral taxation.

Mine Planning: Sampling methods, practices and interpretation; Reserve estimation techniques: Basics of geostatistics and quality control; Optimization of facility location; Mine planning and its components, Determination of mine size and mine life; Ultimate pit configuration and its determination, Optimum mill cut-off grade and its determination, Stope planning, Design of haul road, Selection of mining system vis-a-vis equipment system.

Systems Engineering: Concepts of reliability; Reliability of simple systems; Maintainability and availability; Linear programming, transportation and assignment problems; Network analysis; Inventory models; Queuing theory; Decision trees.



Secretary  
Haryana Public Service Commission  
Panchkula