

Syllabus for the post of Junior Mining Officer, E-1 Grade(Internal)**Circular No. CRP/PER/R/2024/145, Dt.06.03.2024****Part I (Subject related to the post)**

Winning & Working of coal.	<p>Methods of shaft sinking: shaft supports, temporary and permanent, mechanised stone drifting etc.</p> <p>Underground Mining Methods: Choice of methods of mining coal seams and factors (depth, seam thickness, inclination, etc.) affecting the same.</p> <p>Board and pillar method: statutory provisions, mechanized loaders, continuous miners etc., depillaring and applicable statutory provision; pillar extraction with caving and stowing; mechanization in depillaring; local fall and main fall; air blasts.</p> <p>Multi-section and continuous working; liquidation of developed pillars.</p> <p>Longwall mining, Thick seam mining, multi-slice methods; inclined slicing; horizontal slicing and cross slicing in ascending and descending orders; hydraulic mining; special methods of thick seam mining.</p>
Mine Management, Legislation and General Safety.	<p>The Mines Act, 1952; Mines Rules 1955, Mines Rescue Rules, 1985, Mine Vocational Training Rules, 1966, Coal Mine Regulation, 2017 and other rules and legislation as applicable to coal mines</p>
Mine Gases, Explosion & Inundation	<p>Generation, Properties and Physiological Effects of mine gases. Detection of Mine Gases, Methanometer, Flame Safety Lamps. Mine fires and Hazards due to extraction of developed pillars, its mitigation.</p> <p>Inundation, Explosions in mines, Rescue and recovery; investigations and reports; fire fighting plan; rescue equipment; resuscitation and reviving apparatus; selection and training for rescue work.</p>
Mine Ventilation,	<p>Heat and humidity: Sources of heat in mines; geothermal gradient; effects of heat and humidity; heat transfer in board and pillar and long wall workings; measurement of heat and humidity air cooling and conditioning.</p> <p>Air flow in mines: Laws of air flow; resistance of airways; resistance and splitting problems; equipment orifice; Natural ventilation Pressure,</p> <p>Mechanical ventilation, fans in series and parallel, reversal of air flow; fan drift, diffuser and evasee; booster and auxiliary fans; standards of ventilation; ventilation calculation.</p>
Mine Environment	<p>Airborne dust: Generation, dispersion, measurement and control; suppression and treatment of coal dust; properties of stone dust; sampling and analysis of coal dust.</p>

	Mine Reclamation , Failure of dumps and benches, Dump stability managements etc
Explosive and Shot firing	Types of explosive, explosive and accessories being used for blasting in UG mines, explosive and accessories being used for blasting in opencast mines, use, storage and transportation of the explosives.
Strata management / Roof control	Subsidence, types of roof, testing of roof, supporting materials, Types of support, mechanised support, Roof bolting, cable bolting, RMR etc.
Fundamental of Mining Machinery,	Rope haulages; locomotives, conveyors, systems, rope-ways, communication equipment, man riding systems; in-pit crushers, feeder breaker etc., Pumps: Types, dealing with acid water; slurry, drainage; sumps, pumping problems. Function and operation of blast hole drills, rippers, scrapers, shovels; draglines, dumpers, road graders, dozers, wheel loaders; Bucket Wheel Excavators; spreaders; surface continuous miners, In-pit crushing conveying (IPCC)
Fundamental of Mine surveying.	Types of plans and their preparation, care, storage and preservation: duties and responsibilities of surveyors. Application of computers in mine surveying and preparation of plans.
Basic of Geology.	Nature and occurrence of coal seams; description of Indian coalfields; features of coalfields; Mohr's scale of hardness

PART-II (General Studies)

1. General Knowledge
2. General English
3. Quantitative Aptitude & Numerical Ability
4. Test Of Reasoning
5. Computer Basics