



CLUSTER PAPERS

Cluster A VIIIA -1: Introduction to Mineral Exploration (Theory)

CO1- To use the knowledge to develop an exploration strategy for an ore deposit based on a genetic model

CO2-. To understand the importance of Geologists and characteristics and requirements of a Geologist.

CO3- To understand the role played by a geologist in mining rocks and his pivotal role in the economy of the nation

CO4- To know about the purpose of mineral exploration - the discovery and acquisition of new mineral deposit amenable to economic extractive operations now or in future

UNIT - I

Definitions of Prospecting and Exploration. Reconnaissance, Preliminary and Detailed survey. Geological prospecting: Guides and Criteria. Structural, Lithological and Stratigraphic Guides.

UNIT- II

Geophysical Exploration - brief description and application of gravity methods - instruments in gravity method: gravimeters. Brief description and application of magnetic methods – instruments in magnetic method: magnetometers. Brief description and application of seismic methods - instruments in seismic method: geophones.

UNIT- III

Brief description and application of electrical methods - instruments in electrical method: Resistivity meter. Brief description and application of radioactive methods - instruments in radioactive method: G-M Counter, Scintillometer, Ionisation chamber.

UNIT – IV

Geochemical prospecting – primary and secondary dispersion – Geochemical association and path finders. Sampling Methods – Channel, Chip, Grab, Car, groove, Wagon, Pitting and trenching and drill hole sampling. Coning and quartering. Average Assay

UNIT-V

Mining: Alluvial, Quarrying (Open cast mining) and Underground mining. Drilling Methods – Rotary drilling and Percussion drilling. Remote sensing techniques in mineral exploration.

Text Books:



1. Geological Prospecting & Exploration - V. M. Kneiter
2. Mineral Economics - R.K.Sinha & N.L.Sarma.
3. Mining Geology – McKinnstry

Mineral Exploration – Syllabus (Practical)

1. Estimation of Ore reserves: Bedded type and vein type (Extended area and included area methods)
2. Field work in neighboring areas of geological importance: submission of dissertation/ field report (10 Marks). Study and interpretation of topographic maps

