

2.11 30306 ELEMENTS OF MINING

UNIT-1. INTRODUCTION AND STAGES OF MINING

Contribution of Mining activities of civilization-Definitions of terms –Mining Industries in the state and in the country. Pre mining, mining and post-mining – ancillary mining operation, Types of entries to mineral deposits – Shaft, Incline, Adit –applicable conditions- limitations.

UNIT-2 CONCEPTS AND DEFINITION OF TERMS COMMONLY USED IN COAL AND NON-COAL MINING

Classification of the mineral deposits basing on various factors, shallow, deep, very deep, steeply inclined moderately inclined, inclined vein, massive deposits. Classification of coal seams- Thick, moderately thick, thin seams, I, II, III degree gassy seams. Classification of methods of working coal-opencast, underground-Bord and/ longwall-Advancing and retreating.

UNIT-3 DRILLING METHODS

Use of boreholes – (Classification) methods – applicable conditions – tools used for drilling – successive and rotary, feed mechanism – Screw feed and hydraulic mechanism – mud flushing – sludge and core, core recovery methods of core recovery – reasons for deviation of bore holes. Single, double and wire line core barrel.

UNIT-4 EXPLOSIVES AND BLASTING PRACTICE IN MINES.

Uses of explosives in mining industry, characteristics classification basing on strength, speed and application, low and high explosives, their composition, properties – explosives used in underground in opencast workings including LOX, slurries boosters, primer – their composition application permitted explosives – tools, applicability, examples with their composition. Selection of explosives – factors Initiation of explosives – fuses – safety fuse, cortex fuse. Detonators – types, composition, constructional details application. Shot firing Procedure: Types of drill patterns, exploders, blasting tools and misfires and preventive. Measures, Solid blasting-dangerous and remedies.

UNIT-5 MINE GASES ATMOSPHERIC AND MINE AIR

Composition, changes, reasons Classification of mine –poisonous, inflammable and noxious, their physical and chemical properties physiological effects, and occurrence. Testing for the presence of mine gases, flames safety lamp-Principle constructional details, transfer of heat in the lamp, Accumulation and percentage tests- Listing of detectors.

UNIT-6 SHAFT SINKING

Uses, factors for selection of site, different stages of sinking through subsoil, temporary, permanent supporting, special methods .Purpose of widening and deepening- modern trends

Reference Books

1. Elements of Mining: D.J.Deshmukh. Vol.1
2. Winning and working coal: R.T.Deshmukh&D.J.Deshmukh Vol. 1