Quadrant II – Transcript and Related Materials

Programme : **Bachelor of Science (third Year)**

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Unit : **3**

Module Name : **Lead and Zinc Deposits**

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Notes

Lead and Zinc Deposits in India

Introduction and Uses: - Lead and Zinc are minerals commonly occur together in nature as their sulphides. Galena (PbS) and Sphalerite (ZnS). The other minerals of these two metals are Cerrussite – $PbCO_3$

Anglesite – $PbSO_4$

Smithsonite – $ZnCO_3$

Hemimorphite – $Zn_2SiO_2(OH)_2$

These two metals do not occur in nature in native state. These metals are known to man since the earliest times because of its easy extraction and wide industrial uses. Some of the important by – products from these deposits are silver, gold and cadmium. The deposits of Lead and Zinc are either of hydrothermal (cavity filling or replacement) or of sedimentary origin.

Distribution: -

The leading producers of lead and zinc in the world are USA, Canada, Australia, Mexico, Peru and Russia.

In India although several occurrences have been reported, major production comes from Zawar belt of Rajasthan and to some extent from Agnigundala area of Andhra Pradesh.

Rajasthan

In Zawar area in Udaipur district number of old workings for lead & zinc ores cover a wide area. The mineralization has taken place in Quartzites, dolomites, slates and phyllites of Aravallis system which have been intruded by olivine dolerite and quartz veins. These have been affected by shearing and faulting. Shear zones are more concentrated in dolomite horizons. So mineralization is more intensive in these locations. These deposits are thought to be of hydrothermal replacement & cavity filling origin however some believe to be sedimentary syngenetic origin. The principal ore minerals are galena and sphalerite with other metallic sulphides (Cu, Fe, Ag, etc). Total reserve is about 15 million tonnes with 4% Zn and 1.5% Pb. Presently this is a major producing area in India.

Andhra Pradesh: - In Agnigundala copper belt in A.P., lead mineralization has also reported.

The mineralization is confined to Dolomites of Cuddapah formations. The ore is in the form of parallel and enechelon veins. The total reserves is about 3.5 million tonnes with 7.6 to 8.9 % Pb. And excavations has already started in this area.

Gujarat: - In Ambamata region the Cu-Pb-Zn belt has been reported. The reserves are 8.3 million tonnes with 12% metal content.

Pb – Zn ores of Zawar mines, Rajasthan: - Deposits are very extensive and of large size. Mineralization of Pb & Zn sulphides is solely confined to the dolomite rock. Most of the ore schists are found to occur as irregular and tabular masses. The shearing has given rise to pinching & swelling of veins. The chief ore minerals are Galena & sphalerite with pyrite, Arsenopyrite, Anglesite & Goethite. Gangue minerals are dolomite and quartz.