

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-Vth Examination December 2010****Subject code: 152102****Subject Name: Non-Ferrous extractive metallurgy****Date: 15 /12 /2010****Time: 03.00 pm - 05.30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) With the help of illustrative flow diagrams, discuss Explain pyro metallurgical extraction of Cu. **09**

(b) Extraction of Tin. **05**

Q.2 (a) Explain Hall and Heroult's process. **07**

(b) What are different ores available for Aluminium? Explain Bayer's process for production of Alumina. **07**

OR

(b) Short note on Electrolytic extraction and refining of Mg. **07**

Q.3 (a) (i)What are different ores available for non-ferrous metal like Cu, Ni, Pb, Zn, Sn, Mg, Au **04**

(ii) Non-ferrous metallurgical industries in India. **03**

(b) (i) Explain Refining of Tin. **04**

(ii) Explain Dow Process. **03**

OR

Q.3 (a) Explain Hydrometallurgical process for Zinc extraction. **07**

(b) Discuss Pyro metallurgical extraction of Ni. **07**

Q.4 (a) Explain extraction of Gold. **07**

(b) i) Draw flow diagram of recovery of precious metal from anode slime of Cu. **04**

ii) Draw flow diagram for manufacturing of Electrode in Al extraction. **03**

OR

Q.4 (a) What are different Ores available for Silver? What are different extraction methods for silver? Explain Parke's Process. **07**

(b) Explain pyro metallurgical route for extraction of Zinc. **07**

Q.5 (a) Application of Non-ferrous metals like Al, Cu, Pb. **06**

(b) Draw flow diagram of ferric chloride leaching of Cu concentrate. **04**

(c) Write Pyro metallurgical processes chemical reactions during extraction of Cu. **04**

OR

Q.5 (a) Explain Pyro metallurgical extraction of Pb. **07**

(b) List out different production plants for non-ferrous metals like Cu, Zn, Pb, Sn, Al, Ni, Mg, Ti with its locations. **07**
