

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V • EXAMINATION – WINTER • 2014

Subject Code: 152102**Date: 28-11-2014****Subject Name: Non Ferrous Extractive Metallurgy****Time: 10.30 am - 01.00 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) Explain Hall-Heroult's process of Al extraction. **07**
 (b) Explain Mitsubishi process for Copper production. **07**
- Q.2** (a) Explain why the carbothermic reduction process not used for extraction of aluminum on commercial scale? Explain briefly about Red mud and anode effect in Al extraction. **07**
 (b) Describe Bayer process for alumina production with the flow sheet. **07**
- OR**
- (b) Write a note on Occurrence of gold. Describe the amalgamation process for gold extraction. **07**
- Q.3** (a) Describe 'Pidgeon Process' for production of Magnesium from calcined dolomite. **07**
 (b) Write a note on Production plants, important ores of their major deposits in India for Copper and Aluminium. **07**
- OR**
- Q.3** (a) Explain process flow sheet of Cu extraction with all the important parameters involved in the process. **07**
 (b) Draw flow sheet for pyro-metallurgical refining of impure Tin produced during smelting of Tin concentrate. **07**
- Q.4** (a) Draw flow diagram of tin extraction from its concentrate. Note down application of Tin. **07**
 (b) Draw flow sheet of Zinc extraction from its sulphide concentrate by using hydro metallurgical route. **07**
- OR**
- Q.4** (a) Write ores of Zinc. Explain the Imperial Smelting process for production of zinc with necessary sketches. **07**
Q.4 (b) Draw flow sheet for production of Base Bullion (Impure Lead) from lead ore in the blast furnace. Write role of Iron scrap addition in this process. **07**
- Q.5** (a) Describe briefly process of precious metal recovery from anode slime in copper extraction process with flow sheet. **07**
 (b) Name important ores of Aluminum. Explain the ALCOA process for Aluminum production **07**
- OR**
- Q.5** (a) Explain the pyrometallurgical process of nickel extraction from its sulphide ore. **07**
 (b) Draw flow sheet for extraction of Gold from Kolar Gold Ore. **07**
