

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V • EXAMINATION – WINTER 2013

Subject Code: 152102**Date: 29-11-2013****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) Describe Bayer process for alumina production with the flow sheet. **07**
(b) Explain process flow sheet of Cu extraction with all the important parameters involved in the process. **07**

- Q.2** (a) Write a note on Production plants, important ores and locations of their major deposits in India for Copper and Zinc. **07**
(b) With the help of flow sheet explain the process of tin extraction from its concentrate. Why tin is produced by three stages process? **07**

OR

- (b) Name the important ores of tin. With the help of a flow sheet explain briefly the fire refining of tin. **07**

- Q.3** (a) Write a note on Occurrence of gold. Describe the amalgamation process for gold extraction. **07**
(b) Explain Hall-Heroult process of Al extraction. **07**

OR

- Q.3** (a) Explain the three-layer process of Aluminum refining. **07**
(b) Name important ores of Aluminum. Explain the ALCOA process for Aluminum production. **07**

- Q.4** (a) With the help of line diagram, explain the Pidgeon process for extraction of magnesium mentioning the thermodynamic aspects. **07**
(b) Explain the Flash smelting process for Copper production. **07**

OR

- Q.4** (a) Describe the process flow sheet of precious metal recovery from anode slime in copper extraction process. **07**
(b) Explain Mitsubishi process for Copper production in brief. **07**

- Q.5** (a) Explain the pyrometallurgical process of nickel extraction from its sulphide ore. Draw the flow sheet with important parameters involved in the process. **07**
(b) Explain the process for lead extraction from its ore with help of process flow sheet. **07**

OR

- Q.5** (a) Give the ores of nickel with their chemical formula. Explain the carbonyl process for refining of nickel. **07**
(b) Explain the Imperial Smelting process for production of zinc with necessary sketches. **07**
