

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- Vth SEMESTER–EXAMINATION – MAY/JUNE - 2012

Subject code: 152102**Date: 02/06/2012****Subject Name: Non-Ferrous Extractive Metallurgy****Time: 02:30 pm – 05:00 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) Give the ores of copper and aluminum. Write a note on copper and aluminum industries in India. **05**
- (b) Explain why the carbothermic reduction process not used for extraction of aluminum on commercial scale? **02**
- (c) Mention the ores of tin. Draw and explain the process flow sheet for tin extraction. **07**

- Q.2** (a) What is cryolite? Explain the role of cryolite in electrolysis of aluminum. **03**
- (b) Mention the harmful impurities in electrical grade copper. How are they eliminated during copper electrorefining? **04**
- (c) Define converting. Discuss the different stages of copper converting. **07**

OR

- (c) Discuss Bayer process for alumina production. Give the flow sheet. **07**

- Q.3** (a) Explain Hall-Heroult's process of Al extraction. **07**
- (b) What do you mean by smelting? Explain the Flash smelting process for Copper production. **07**

OR

- Q.3** (a) Explain the ALCOA process for Aluminum production. Enlist the uses of aluminum. **07**
- (b) Explain the WORCRA process for Copper production. Mention the advantages of this process. **07**

- Q.4** (a) Give the ores of nickel. Explain the pyrometallurgical processes for nickel production. **07**
- (b) Give the ores of Zinc. Explain the pyrometallurgical processes for zinc production. **07**

OR

- Q.4** (a) Describe the hydrometallurgical processes for nickel production. Give the applications of nickel. **07**
- Q.4** (b) Write the ores of lead. Draw and explain the flow sheet for lead extraction process. **07**

- Q.5** (a) Discuss the Amalgamation process for gold extraction. **07**
- (b) Give the ores of magnesium. Explain the Pidgeon process for magnesium extraction. **07**

OR

- Q.5** (a) What do you mean by anode slime? Explain the process for recovery of precious metals from anode slime. **07**
- (b) Discuss the parke's process for silver recovery from lead. **07**
