

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – SUMMER • 2014****Subject Code: 152102****Date: 13-06-2014****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)** List important ores and locations of their major deposits on world level for Aluminum, Tin, Zinc and Magnesium. **07**
- (b)** Write a note on Occurrence of gold. Discuss the chlorination process for gold extraction. **07**
- Q.2 (a)** Write ores of copper. Describe process flow sheet of Cu extraction with all the important parameters involved in the process. **07**
- (b)** Discuss Bayer process for alumina production and give the flow sheet. Why high pressure is used in Bayer process? **07**
- OR**
- (b)** Explain the Flash smelting process for Copper production. **07**
- Q.3 (a)** What is electrolytic refining? Explain the three-layer process of electrolytic refining of Aluminum. **07**
- (b)** Discuss about Single step and multistep continuous processes for copper extraction. Differentiate between these. **07**
- OR**
- Q.3 (a)** Explain the ALCOA process for Aluminum production. **07**
- (b)** What is Blister copper? Explain the Electrolytic refining process of Blister copper. **07**
- Q.4 (a)** Explain the lead extraction process from its ore. Draw the flow sheet with important parameters involved in the process. **07**
- (b)** With the help of flow sheet explain the tin extraction process from its concentrate. Explain, Why tin is produced by three stages process? **07**
- OR**
- Q.4 (a)** Explain the Imperial Smelting process for production of zinc with necessary sketches. **07**
- (b)** What is fire refining? Using example of tin explain it, by the help of flow sheet. **07**
- Q.5 (a)** Explain the pyrometallurgical process of nickel extraction from its sulphide ore. Draw the process flow sheet with important parameters. **07**
- (b)** Explain briefly the NML and CECRI processes for production of magnesium in India. **07**
- OR**
- Q.5 (a)** Give the ores of nickel with their chemical formula. Explain the carbonyl process for refining of nickel. **07**
- (b)** With the help of line diagram, explain the Pidgeon process for extraction of magnesium. **07**
