

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV EXAMINATION – WINTER 2015

Subject Code: 142102**Date: 30/12/2015****Subject Name: Principles of Extractive Metallurgy****Time: 02:30pm to 05:00pm****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) What is extractive metallurgy? List out resources for metals? Give basic flow diagram of extractive metallurgy **07**
(b) What do you mean by Ellingham diagram? Explain in detail standard free energy diagram for oxides **07**
- Q.2** (a) What are different Pyro metallurgical processes? Explain fluidized bed roasting method. **07**
(b) Draw flow diagram of extraction of Aluminum. **07**
- OR**
- (b) What is Arrhenius equation? Derive it. **07**
- Q.3** (a) Differentiate between electro-winning and electro-refining. **07**
(b) What is Leaching? Write types of leaching. Explain briefly about pressure leaching **07**
- OR**
- Q.3** (a) Draw flow sheet of extraction of iron and steel & explain briefly. **07**
(b) Define smelting? Differentiate between Matte smelting and Reduction smelting processes. **07**
- Q.4** (a) Explain briefly about fused salt electrolysis. **07**
(b) What are different purification processes? Write in detail about solvent extraction process. **07**
- OR**
- Q.4** (a) Draw a neat flow sheet for extraction of copper from its sulphide ore. **07**
(b) Differentiate between Order and Molecularity. **07**
- Q.5** (a) Explain Collision theory **07**
(b) Draw flow sheet of extraction of Zinc & explain briefly. **07**
- OR**
- Q.5** (a) What do you mean by rate of a reaction? Discuss various factors affecting rate of a reaction. **07**
(b) Short note on absolute reaction rate. **07**
