Seat No.:	Enrolment No.

Subject Code:2142102

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-IV (New) EXAMINATION - WINTER 2015

Date:30/12/2015

Sub	ject	Name: PRINCIPLES OF EXTRACTIVE METALLURGY	
	ne: 2 ructio	:30pm to 5:00pm Total Marks:	70
HISU	1. 2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	What is hydrometallurgy? Give basic steps of hydrometallurgical operations using the flow sheet.	07
	(b)	Define pyrometallurgy. Describe different advantages & Limitations of pyrometallurgical extraction process.	07
Q.2	(a) (b)	Write a note on Solvent extraction process. Define Leaching. Explain the Pressure leaching process. Why it is carried out in autoclave?	07 07
	(b)	OR What is bacterial leaching? Discuss bacterial leaching and list out advantage.	07
Q.3	(a) (b)	Define smelting. Explain flash smelting process. Write a note on Ellingham diagrams. Describe their importance in pyrometallurgy. OR	07 07
Q.3	(a) (b)	Discuss different steps of fluidized bed roasting process. Mention the importance of Fluidization curve. Write a note on fused salt electrolysis.	07 07
Q.4	(a) (b)	Explain the Electrowinning process. Give applications. Draw process flow sheet of Al extraction with important parameters involved in the process.	07 07
		OR	
Q.4	(a)	Explain the Electrorefining of metals from aqueous and fused salt systems using examples.	07
	(b)	Draw process flow sheet of Tin extraction. Label all important parameters involved in the process.	07
Q.5	(a) (b)	Draw and explain process flow sheet for Iron and steel Production. What is heterogeneous and homogenous reaction? Define velocity of a reaction and discuss factors affecting velocity of a reaction. OR	07 07
Q.5	(a)	Explain Collision Theory of reaction kinetics.	07
	(b)	Describe theory of Absolute Reaction Rate.	07
