Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V EXAMINATION – WINTER 2015

Subject Code: 152102 **Date:17/12/2015**

Subject Name: Nonferrous Extractive Metallurgy

Time: 10:30am to 1:00pm **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)**	Discuss about present position on non-ferrous metallurgical industry in India. Mention the important ores of Aluminum , Copper, Lead with chemical formula.	**07**
	(b)	Explain the three–layer process of Aluminum refining/ electrolytic refining of Aluminum.	**07**
Q.2	**(a)**	Explain 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.	**07**
		OR	
	(b)	Explain Mitsubishi process for Copper production in brief.	**07**
Q.3	**(a)**	Name the important ores of tin. With the help of a flow sheet explain briefly the refining of tin.	**07**
	(b)	Write a note on Occurrence of gold. Describe the amalgamation process for gold extraction	**07**
		OR	
Q.3	**(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 how synthetic cryolite can be made for Al extraction with flow sheet.	**07**
Q.4	**(a)**	Explain the process for Pb extraction and draw the flow sheet with important parameters involved in the process	**07**
	(b)	What is Blister copper? Explain the refining processes of Blister copper.	**07**
		OR	
Q.4	**(a)**	Draw and explain the pyrometallurgical process flow sheet of zinc extraction with important parameters involved in the process	**07**
	(b)	Explain the hydrometallurgical processes for nickel production	**07**
Q.5	**(a)**	Explain recovery of precious metals during production of copper.	**07**
	(b)	Discuss the parke's process for silver recovery from lead.	**07**
		OR	
Q.5	**(a)**	With the help of line diagram, explain the Pidgeon process for extraction of magnesium mentioning the thermodynamic aspects.	**07**
	(b)	Give the ores of Tin ,Gold and Magnesium with their chemical formula. Enlist the applications of Tin.	**07**

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