

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018****Subject Code:2142102****Date:05/12/2018****Subject Name:Principles of Extractive Metallurgy****Time: 02:30 PM TO 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.

		MARKS	
Q.1	(a) Draw basic flow diagram of Extractive metallurgy including all processes.	03	
	(b) What are merits and demerits of Pyro metallurgical processes	04	
	(c) List out Pyro metallurgical process. Explain roasting.	07	
Q.2	(a) Draw flow sheet for production of Iron and Steel.	03	
	(b) What is hydrometallurgy? Write merit and demerits of Hydro metallurgy.	04	
	(c) Explain Ellingham diagram for oxide system.	07	
OR			
Q.3	(c) Describe the microbial leaching.	07	
	(a) Explain in brief Fire Refining processes.	03	
	(b) Explain in brief about Solvent Extraction process.	04	
Q.3	(c) Explain smelting. Differentiate between Matte smelting and Reduction smelting processes	07	
	OR		
	Q.3	(a) Draw a simple flow sheet for extraction of Aluminum from bauxite ore.	03
(b) Write in detail about ion exchange process.		04	
(c) Define Leaching. Explain pressure leaching.		07	
Q.4	(a) Draw flow sheet for production of Lead.	03	
	(b) Draw a neat flow sheet for extraction of copper from its sulphide ore.	04	
	(c) Differentiate between electro-winning and electro-refining.	07	
OR			
Q.4	(a) What is heterogeneous and homogenous reaction?	03	
	(b) Draw flow sheet of extraction of Zinc.	04	
	(c) Explain Collision Theory of reaction kinetics	07	
Q.5	(a) Derive equation for half life period of first order reaction	03	
	(b) Derive Arrhenius Equation	04	
	(c) Differentiate between Order of reactions and Molecularity.	07	
OR			
Q.5	(a) Write note on fuse salt electrolysis.	03	
	(b) What is percolation leaching? List out advantage of it.	04	
	(c) Differentiate between palletizing and sintering.	07	
