

Enrollment No: _____

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech Mid Semester Exam

Semester: 6th
Subject Code: (203103351)
Subject Name: (Chemical Process Industries)

Date: (30/01/2024)
Time: (1hr: 30min)
Total Marks: 40

Sr. No.		Marks
Q.1	(A)	05
	1. What is the chlorine-caustic process in electrochemical industries? a) Electrowinning b) Electrorefining c) Electro-separation d) Electroplating	
	2. Which one mentioned below is not a major industrial chemical produced by chloro-alkali industry? a) Soda ash b) Caustic soda c) Chlorine d) Ammonium carbonate	
	3. What are the input bulk requirements for the solvay process? a) Salt, coal and water b) Salt, coal and limestone c) Salt, limestone and water d) Coal, limestone and water	
	4. What is the disadvantage of solvay process? a) No co-products to dispose b) Use of low-grade brine c) Higher salt consumption d) Low corrosion problems	
	5. How triple-superphosphate is made? a) Phosphate rock + H_2SO_4 b) Phosphate rock + HCl c) Phosphate rock + HNO_3 d) Phosphate rock + H_3PO_4	

(B) Five Fill in the blanks

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1. The _____ process is a widely used method for the production of sulfuric acid,
2. The production of phosphoric acid involves the treatment of phosphate rock with _____
3. _____ NPK fertilizer is a type of fertilizer that contains essential nutrients for plant growth,
4. The Haber-Bosch process is a prominent method for ammonia production, involving the reaction of _____ with _____ in the presence of an iron-based catalyst.
5. The diaphragm allows selective transport of ions, ensuring the production of high-quality _____ and chlorine, crucial for various industrial applications.

Q.2 Attempt any four(Short Questions)

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- (1) Describe the mining of Sulfur using the Frasch process.
- (2) Write a short note on NPK fertilizer and its application in agriculture.
- (3) Explain The production of Nitric acid by Arc Process
- (4) Explain the production of Ammonium Phosphate
- (5) What is the importance Chemical Process Industries

Q.3 Attempt any two questions

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- (1) Explain the manufacturing of Caustic and Chlorine with a flow diagram using the Mercury Cell process.
- (2) Draw neat flow sheet illustrating the production of Phosphoric Acid through the HCL Method.
- (3) Draw the Flowsheet of Sodium Bicarbonate.

Q.4 (A) Discuss the significance of the Hydrochloric Acid (HCL) Method in the production of Phosphoric Acid with neat flow sheet

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- (B) Explain the manufacturing of H₂SO₄ by contact process**

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OR

- (B) Describe the Solvay Process for Sodium Carbonate production, highlighting its key steps and chemical reactions**

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