

Enrollment No: _____

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

Semester: 8th

Date: 29/01/2024

Subject Code: 203103453

Time: 10:30 AM TO 12:00 PM

Subject Name: Process Synthesis

Total Marks: 40

Sr. No.		Marks																				
Q.1	(A) 1. Define Pinch Point. 2. State the Full Form of OSHA. 3. Define Process Design. 4. What is Maximum Potential Profit? 5. Give any two examples of basic chemical products.	05																				
	(B) What are the sources of Literature Survey in product design explain any two in detail.	05																				
Q.2	Attempt any four Questions.	12																				
	(1) Explain Various types of Chemical Products available in the industry.																					
	(2) Enlist advantages of designing in a team.																					
	(3) Explain applications of Process Synthesis in Chemical Plants.																					
	(4) Describe in Detail criteria of assessing preliminary design.																					
	(5) "Product deal with quantity , quality & cost" Justify the statement.																					
Q.3	Attempt any two questions	08																				
	(1) Explain in detail about basic flowsheet synthesis steps.																					
	(2) Define Environmental Factors affecting product design.																					
	(3) Explain the 'Technology Development' Step available in Process & Product Design in detail.																					
Q.4	(A) Identify the Pinch Point for the following data of Heat Exchangers using Composite Curve Method	05																				
	<table border="1"> <thead> <tr> <th>Streams</th> <th>T^s(°F)</th> <th>T^t(°F)</th> <th>mC_p(Btu/hr °F)</th> </tr> </thead> <tbody> <tr> <td>C1</td> <td>120</td> <td>235</td> <td>20000</td> </tr> <tr> <td>C2</td> <td>180</td> <td>240</td> <td>40000</td> </tr> <tr> <td>H1</td> <td>260</td> <td>160</td> <td>30000</td> </tr> <tr> <td>H2</td> <td>250</td> <td>130</td> <td>15000</td> </tr> </tbody> </table>	Streams	T ^s (°F)	T ^t (°F)	mC _p (Btu/hr °F)	C1	120	235	20000	C2	180	240	40000	H1	260	160	30000	H2	250	130	15000	
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	(B) Calculate the Minimum Energy Requirement on Hot & Cold Side using Temperature Interval Method	05																				
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	OR																					
	(B) Explain Any one case study on Decomposition strategy for Flowsheet Synthesis.	05																				