

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY (VSSUT), ODISHA

Odd Mid Semester Examination for Academic Session 2024-25

COURSE NAME: B. Tech

SEMESTER: 3rd

BRANCH NAME: CHEMICAL ENGINEERING

SUBJECT NAME: CHEMICAL PROCESS TECHNOLOGY

FULL MARKS: 30

TIME: 90 Minutes

Answer **All** Questions.

The figures in the right-hand margin indicate Marks. *Symbols carry usual meaning.*

Q1.	Answer all Questions.	[2 × 3]
a)	List the various reactions taking place in the Lead Chamber process for the manufacturing of Sulfuric acid.	- CO1
b)	Why cooling chamber is used in the nitric acid manufacturing process?	- CO2
c)	What is the role of Denuding tower in Caustic Soda manufacturing unit?	- CO3
Q2.		[3+5]
	Write down the overall reaction, reaction occurred in the ammoniation tower and carbonating tower of the Solvay Process. What are the major engineering problems associated with the Solvay process and how to overcome those problems?	- CO1
	OR	
	What are the uses of Nitric acid? Write down the reactions occurred in the catalytic chamber, oxidation chamber and absorption tower in the Ostwald Process. Also write the major engineering problems associated with the Ostwald process and how to overcome those problems?	- CO1
Q3.		[8]
	Describe about the manufacturing process of Ammonia by Haber process with a neat labeled flow sheet. Write down the reactions associated with the manufacturing process and the major engineering issues of the process.	- CO2
	OR	
	What are the different kinds of nutrients required for the growth of the plant? What is the function of nutrients like Nitrogen, Phosphorous and Potassium.	- CO2
Q4.		[4+4]
	Write down the mechanism of a) Free radical polymerization b) Cationic Polymerization	- CO3
	OR	
	Explain in detail about a) Solution Polymerization b) Suspension Polymerization	- CO3

H₂SO₄