

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Third Semester**Chemical Engineering***CH3303 / UCHT24305 - Chemical Process Industries***Regulations - 2021 & 2024**Duration : 3 Hrs**Maximum : 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Name the two main industrial processes used for the production of sulfuric acid.	L1	1	2
2.	Why is the Contact process more widely used than the Chamber process for sulfuric acid production?	L2	1	2
3.	List the three primary nutrient elements present in fertilizers.	L1	2	2
4.	What is the key difference between Single Super Phosphate (SSP) and Diammonium Phosphate (DAP)?	L2	2	2
5.	What are the main raw materials used in the pulp and paper industry?	L1	3	2
6.	Why bagasse is considered a useful by-product of the sugar industry?	L2	3	2
7.	Define the term cracking in a petroleum refinery.	L1	4	2
8.	Give one example of a petrochemical derived from benzene.	L2	4	2
9.	Name four common industrial gases.	L1	5	2
10.	What is the primary use of synthesis gas?	L2	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Explain the steps involved in the Contact process for the manufacture of sulfuric acid with the role of the catalyst used. Or	L2	1	16
	b Interpret the production process of cement with the key properties that make it an essential construction material.	L2	1	16
12.	a Infer the production process of Phosphoric Acid by the wet process. Assess how it is used to produce complex fertilizers like NPK. Or	L2	2	16
	b Exemplify the manufacturing process of urea from ammonia and carbon dioxide. Give its importance as a nitrogenous fertilizer.	L2	2	16
13.	a Illustrate with a neat block flow diagram the steps involved in the production of sugar from sugarcane. Or	L2	3	16
	b Compare the Kraft and Sulfite pulping processes. Suggest which process is better for producing strong paper and why?	L2	3	16

14.	a	Apply the concept of cracking to explain how heavier fractions are converted into more valuable products like gasoline.	L4	4	16
		Or			
	b	Outline the process for the production of methanol from synthesis gas. List two important industrial uses of methanol.	L4	4	16
15.	a	Compare and contrast the production methods of hydrogen via steam reforming of natural gas and electrolysis of water. Which method is more suitable for large-scale industrial use?	L5	5	16
		Or			
	b	Analyze the role of industrial gases like oxygen, nitrogen, and argon in various manufacturing sectors. Explain with specific applications with their unique properties.	L5	5	16