

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024***Fifth Semester**Chemical Engineering***CH3005 - Petrochemical Technology***Regulations - 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Recall how petrochemical industries attained historical growth and economic significance.	RE	1	2
2.	List the classification of petrochemicals.	RE	1	2
3.	Define the process of reforming and cracking in petrochemical feedstocks.	RE	2	2
4.	What are the production methods for ethylene and propylene?	RE	2	2
5.	Brief the production process and applications of acrylonitrile.	RE	3	2
6.	Classify the process variables and technology used in the production of vinyl chloride.	UN	3	2
7.	Identify the production techniques for polyethylene (LDPE, HDPE) and polypropylene.	AP	4	2
8.	Enlist the properties and applications of Acrylonitrile Butadiene Styrene (ABS).	RE	4	2
9.	List out the types and roles of petrochemicals in healthcare and pharmaceuticals.	RE	5	2
10.	Simplify the application and significance of fertilizers such as urea and NPK in agriculture.	AN	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Explain the structure of petrochemical complexes and the flow scheme of petrochemical processes. Or	UN	1	13
	b i Discuss the criteria for selecting feedstocks in the petrochemical industry.	UN	1	8
	ii Defend the growth of petrochemical industries and its dominance in economic improvement of a nation.	EV	1	5
12.	a i Compare and contrast the sources and production methods of benzene, toluene.	AN	2	8
	ii Interpret the production of xylene in petrochemical industries.	UN	2	5
	Or			
	b Explain the role of synthesis gas and its derivatives in the petrochemical industry.	UN	2	13

13.	a	Discuss the advantages and process technology for producing methyl tertiary-butyl ether (MTBE).	UN	3	13
		Or			
	b	Explain the production of bisphenol and its industrial applications.	UN	3	13
14.	a	Compare the polymerization processes for different types of polyethylene.	AN	4	13
		Or			
	b i	Illustrate the production and applications of nylon and polycarbonates in the polymer industry.	UN	4	9
	ii	Summarize how LDPE varies from HDPE.	UN	4	4
15.	a	Discuss the applications of petrochemicals in the cosmetics and electronic chemicals industry.	UN	5	13
		Or			
	b i	Explain the role and types of lubricants and adhesives derived from petrochemicals.	UN	5	8
	ii	Extend the production process of ammonia.	UN	5	5

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Discuss the process flow and applications of ethyl benzene in petrochemical industries.	UN	3	15
		Or			
	b	Assume and analyze the role of petrochemicals in agriculture, focusing on fertilizers and their impact in the upcoming years.	AN	5	15