U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: VI**
Branch: Chemical Engineering **Duration: 3 hrs.**
Course Code: 22CH6PELB2 **Max Marks: 100**
Course: Petroleum Refining

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

		Unit-I	*CO*	*PO*	Marks
1	a)	Explain the significance of following thermal properties in petroleum industries (i) Specific heat (ii) API gravity	*CO1*	*PO1*	**05**
	b)	What is the significance of UOP-k factor? How is it determined?	*CO1*	*PO1*	**05**
	c)	Explain the process of TBP analysis with a schematic diagram of TBP apparatus and the TBP curve.	*CO1*	*PO1*	**10**
		Unit-II			
2	a)	Explain the significance of the various types of inhibitors and combustion aids as additives to gasoline.	*CO6*	*PO7*	**04**
	b)	Explain the ASTM distillation test for gasoline and highlight the characteristic features with the ASTM distillation curve.	*CO2*	*PO2*	**08**
	c)	Describe the following testing methods and their significance: i. Flash point of kerosene ii. Rams bottom method for carbon residue of lube oil	*CO2*	*PO2*	**08**
		Unit -III			
3	a)	What are the various impurities present in the petroleum crude?	*CO3*	*PO2*	**04**
	b)	Explain gasoline treatment by catalytic desulfurization process with a process flow diagram.	*CO6*	*PO7*	**08**
	c)	Describe the sweetening operation of gases by the ethanolamine treatment process with the process flow diagram.	*CO3*	*PO2*	**08**
		OR			
4	a)	Describe the sweetening operation of gases by the Stretford process with the process flow diagram.	*CO3*	*PO2*	**10**
	b)	Differentiate between the settling method and electric desalter technique of dehydration of crude pretreatment with a schematic diagram.	*CO 3*	*PO2*	**10**

			Unit –IV			
	5	a)	Describe the process of fluid catalytic cracking designed by ESSO with a separate transfer line with a schematic diagram. Explain the profile of different parameters with distance in the riser of the Fluid Catalytic Cracking unit (FCC).	***CO5***	***PO2***	**10**
		b)	Explain the following: i. Feedstock requirements for catalytic reforming process. ii. Catalysts for hydrocracking.	***CO4***	***PO3***	**10**
			OR			
	6	a)	Differentiate between hydrocracking and catalytic cracking.	***CO4***	***PO3***	**05**
		b)	Explain the Carbonium ion mechanism with the help of the chemical reactions involved.	***CO4***	***PO3***	**07**
		c)	Describe the naphtha cracking process with the neat process flow diagram.	***CO5***	***PO2***	**08**
			Unit -V			
	7	a)	Discuss the various thermal cracking reactions. Mention the feedstock composition, mechanism and conditions.	***CO4***	***PO3***	**10**
		b)	Explain delayed coking operation with the operating conditions and process flow diagram.	***CO5***	***PO2***	**10**

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