Date: 02-11-2017

**Total Marks: 70** 

Subject Code: 180502

Time: 02:30 pm to 05:00 pm

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**Subject Name: Petroleum Refining and Petrochemicals** 

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE Semester VIII • EXAMINATION – WINTER 2017** 

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		Attempt all questions.	
		Make suitable assumptions wherever necessary.	
	3.	Figures to the right indicate full marks.	
Q.1	Answer the following:		07
	(a)(i)	Define Flash & Fire point.	
	(ii)	Give the expression for API gravity. Write expression for a blend.	
	(iii)	What is LPG? List grades of LPG.	
	(iv)	What is knocking? Define octane number.	
	( <b>v</b> )	What is sweetening? List criteria of doctoring	
	(vi)	Give the expression of UOP characterization factor. Write expression for a mixture of components.	
	(vii)	State the significance of Softening point.	
	<b>(b)</b>	List tests for gasoline. Discuss ASTM distillation characteristics with a neat diagram.	07
Q.2	(a)	Write short note on gases from petroleum.	07
	<b>(b)</b>	With a neat sketch of True Boiling Point apparatus, explain the test method and significance.	07
		OR	
	<b>(b)</b>	With a neat sketch of Conradson carbon residue apparatus, explain the test method and significance	07
Q.3	(a)	Explain oxidation of Mercaptans to disulfides.	<b>07</b>
	<b>(b)</b>	What is cracking? Discuss thermal cracking operations and properties of cracked materials.	07
		OR	
Q.3	(a)	Discuss dehydration and desalting of crude.	<b>07</b>
	<b>(b)</b>	Explain Merox sweetening in detail	<b>07</b>
Q.4	<b>(a)</b>	Discuss polyethylene manufacture by low pressure process.	<b>07</b>
	<b>(b)</b>	Discuss major engineering problems in SBR manufacture	<b>07</b>
		OR	
Q.4	<b>(a)</b>	Explain manufacture of methanol with a neat flowsheet.	<b>07</b>
	<b>(b)</b>	Discuss major engineering problems in ethylene oxide manufacture.	<b>07</b>
Q.5	(a)	Explain manufacture of vinyl chloride monomer. List major engineering problems.	07
	<b>(b)</b>	Write short note on petrochemical feedstock  OR	07
Q.5	(a)	With a neat flow diagram discuss manufacture of acetic acid and the major engineering problems associated with it.	07
	<b>(b)</b>	Write short note on "Petrochemical sector- present and future"	07
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