Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 713004N **Date: 06-01-2014**

Subject Name: Advance Petroleum Refining

Time: 10.30 am – 01.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	For the following conditions, calculate (a) the wt% hydrogen in coke, (b) the coke yield and (c) the catalyst to oil ratio. Carbon on Spent catalyst: 1.50 wt% Carbon on regenerated catalyst : 0.80 wt% Air from Blower: 1,55,000 lb/hr Hydrocarbon feed to reactor : 2,95,000 lb/hr Flue gas analysis (Orsat) vol % : CO = 12.0, CO_2 = 6.0, O_2 = 0.7, N_2 = 81.3	**14**
Q.2	**(a)**	Discuss in detail about Deep catalytic cracking.	**07**
	(b)	Explain the Partial and Complete CO Combustion in Fluid Catalytic cracking unit.	**07**
		OR	
	(b)	Discuss the role of FCC unit in Gasoline reformation.	**07**
Q.3	**(a)**	Explain with neat sketch ROSE process.	**07**
	(b)	Discuss the Process variable of Solvent Deasphalting process.	**07**
		OR	
Q.3	**(a)**	Differentiate between Atmospheric Distillation and Vacuum Distillation unit for Petroleum refining.	**07**
	(b)	With neat sketch discuss the Continuous regenerative (moving bed) CCR Platforming process. .	**07**
Q.4	**(a)**	What is Visbreaking? Discuss the Coil type visbreaker in detail.	**07**
	(b)	Discuss the claus process for sulphur recovery from gaseous H_2S with neat sketch,	**07**
		OR	
Q.4	**(a)**	Explain the STRACTO effluent refrigerated Sulfuric acid Alkylation process with neat flow sheet.	**07**
Q.4	**(b)**	Discuss about the feed injection system and Riser termination system of FCC unit.	**07**
Q.5	**(a)**	Write Short note on Catalyst replacement reactor (OCR).	**07**
	(b)	Discuss the two stage hydro cracker process.	**07**
		OR	
Q.5	**(a)**	Discuss about the isocracking for Naphtha and middle distillate production.	**07**
	(b)	List out the various ways of producing clean fuels; discuss any one process in detail.	**07**

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