Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 2713004 **Date: 12-01-2015**

Subject Name: Petroleum Refinery Engineering

Time: 02:30 pm - 05:00 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)**	Write a note on origin and composition of petroleum.	**07**
	(b)	Mention stepwise procedure (Nelsonôs method) for inter conversion of distillation data.	**07**
Q.2	**(a)**	What is Crude Assay Analysis? Explain TBP and other distillations used in Refinery study in brief.	**07**
	(b)	State different methods to find out yield of petroleum fractions from crude oil. With special reference to graphical co-relations, explain Watkins method in detail.	**07**
		OR	
	(b)	Explain Mid Percentage Curve and Yield Curve and state its usefulness in detail.	**07**
Q.3	**(a)**	Explain Non-Regenerative Catalytic Reforming (Platforming) with neat flow sheet.	**07**
	(b)	What are the different methods for treatment of Lube oil? Explain any one in detail.	**07**
		OR	
Q.3	**(a)**	Explain Continuous Catalytic Regenerative Reforming (CCR) with neat flow sheet. Also, state its advantages and catalyst used in the process.	**07**
	(b)	Mention various techniques for Dewaxing. Explain any one in detail.	**07**
Q.4	**(a)**	Explain Edmisters method for construction of phase diagram of crude oil.	**07**
	(b)	With reference to ADU, explain the term ï ñAtmospheric Tower Charge Dataò and calculation procedure for characterization of crude oil.	**07**
		OR	
Q.4	**(a)**	Describe Hydro-Desulphurization in detail.	**07**
	(b)	Explain the effect of Feed Stock properties of FCC on its yield.	**07**
Q.5	**(a)**	Why vaccum distillation of crude oil is required? Mention the economic operating conditions of vaccum tower design.	**07**
	(b)	Explain material balance and energy balance of FCC in detail.	**07**
		OR	
Q.5	**(a)**	Write a short note on mass balance calculations of ADU and VDU.	**07**
	(b)	With neat flowsheet, explain construction, working and advances in FCC briefly.	**07**

****