

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 (Nelson's 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 "Atmospheric Tower Charge Data" 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 vacuum distillation of crude oil is required? Mention the economic operating conditions of vacuum 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**
