Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (CHEMICAL ENGINEERING)

END SEMESTER EXAMINATIONS, MAY 2017

SUBJECT: PETROLEUM REFINERY ENGINEERING [CHE 4004]

REVISED CREDIT SYSTEM (29.04.2017)

Time: 3 Hours MAX. MARKS: 100

Instructions to Candidates:

- Answer **ALL** the questions.
- Give neat flowsheets wherever required.

1A.	Discuss the classification of crude oil based on the following parameter i. Sulfur content ii. Density iii. Hydrocarbon base iv. Toxicity	**8**
1B.	Describe the working principle of a desalter	**5**
1C.	Why is the theory of biotic origin of crude oil more popular than the abiotic origin?	**7**
2A	With a neat sketch describe the design and operation of a furnace	**10**
2B.	Analyze the importance of a Visbreaker in a crude oil refinery	**10**
3.	Differentiate between i. Thermal cracking ii. Fluid catalytic cracking iii. Hydrocracking	**6** **7** **7**
4A.	Draw a neat sketch of a riser wye section and explain its advantages over a conventional reactor in a fluid catalytic cracker	**6**
4B.	List the various chemical reactions taking place in a catalytic reformer and the catalyst properties responsible for the same	**8**
4C.	State the process description of a MEROX unit with a neat process flow diagram	**6**
5A.	What is the impact of ban on BS-III vehicles on the environment.	**5**
5B.	Write a note on the Energy conservation in petroleum refineries	**5**
5B.	Lube oil processing: propane de-asphalting Solvent extraction	**10**