2012-2013
M.TECH. AUTUMN (III SEMESTER) EXAMINATION
(PETROLEUM PROCESSING AND PETROCHEMICAL ENGINEERING)
PETROLEUM REFINERY ENGINEERING (PK-731) ELECTIVE III

Maximum Marks: 60
Duration: Three Hours

"Students governed by the old ordinance will be examined out of 75 marks. Their obtained marks shall be proportionately raised".

Answer any FOUR questions.

1. (a) Discuss the Indian Refining Industry with reference to historical perspective and future trends. 08
   (b) Discuss the important distillation fractions and their quality control. 07

2. Explain, in detail, the Coil and Soaker modes of operation for Visbreaking with reference to process flowsheets, product properties, operational aspects, economics and recent advancements. 15

3. (a) Describe the important properties that are considered for the selection of feed for Delayed Coking Process. 04
   (b) Describe the operating variables of the Delayed Coking process. 04
   (c) Discuss the various types of petroleum cokes with emphasis on their use and feed required. 07

4. With the help of a process flowsheet, describe in detail, Fluidized Catalytic Cracking process. Also discuss the reactions involved, cracking catalysts and process variables for it. 15

5. Discuss, in detail, the process of catalytic reforming with reference to reactions involved, modes of operation and process flowsheet. 15

6. (a) Differentiate between different hydrogen processes employed in a petroleum refinery such as hydrotreating, hyrocracking, hydروprocessing, etc. Discuss hydrotreating, in brief with the help of process description. 07
   (b) Mention the various residue upgradation processes suitable for the crude mix being processed in Indian refineries. Explain any one of them in detail. 08