Answer any FIVE questions.

1. Write notes on the following
   (a) Overview of petroleum refining industry in India
   (b) Distillation fractions and their quality control.

2. Discuss the catalytic reforming process with special emphasis on its importance to gasoline pool, catalyst and operating variables.

3. Explain the visbreaking process with the help of a process flow sheet. Also describe the important equipment employed in the process.

4. (a) Describe the important properties that are considered for the selection of feed for Delayed Coking Process.
   (b) Describe the operating variables of the Delayed Coking process.
   (c) Discuss the properties and uses of the various types of coke produced in refinery

5. (a) Discuss the significance of FCC in a refinery with respect to its various modes of operation.
   (b) Discuss, in brief, the catalysts employed in FCC process.
   (c) Describe the operating variables for catalytic cracking process.

6. (a) Discuss hydroprocessing with special emphasis on different types of reactors employed for it.
   (b) Discuss the role of hydrocracking in a petroleum refinery with special emphasis on the synergy between catalytic and hydrocracking processes.

7. Write a short note on the following residue upgradation processes:
   (a) Solvent deasphalting.
   (b) Gasification.