

**(3 Hours)**

**[Total: 80]**

N.B. : (1) Question No. 1 is compulsory.

(2) Solve any three questions from the remaining questions.

(3) Neat flow sheets must be drawn whenever necessary.

Q 1. Explain and discuss the importance of following: **(20)**

- (a) Flash point and Fire point.
- (b) ASTM and True Boiling Point Distillation
- (c) Oxidation stability.
- (d) Composition of Crude Oil.

Q.2.(a) Give different testing methods to test quality of gasoline. Explain anyone method in short with a suitable diagram. **(10)**

(b) Discuss in brief the process of furfural extraction for lubricating oil. What are the advantages of using furfural over phenol as a solvent? **(10)**

Q.3. (a) Distinguish between pump around and pump back reflux in atmospheric distillation unit. **(10)**

(b) Discuss LPG manufacture in detail with suitable flow diagram **(10)**

Q.4. (a) Explain the Ketone dewaxing in process detail with neat flow diagram. **(10)**

(b) Explain the Flexi cracking process in detail. **(10)**

Q.5. (a) Explain HF alkylation process in detail and compare it with sulfuric acid alkylation process **(10)**

(b) Explain delayed coking operation in detail with a suitable flow diagram **(10)**

Q.6. Write short notes on the following. **(20)**

- (a) Viscosity index.
- (b) Bitumen and Asphalt.
- (c) Merits & demerits of Bio-fuel
- (d) Pour Point and Smoke Point

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