

[Time: Three Hours]

[ Marks:80]

Please check whether you have got the right question paper.

- N.B:
1. Question.No.1 is compulsory.
  2. Attempt any three questions out of remaining five questions.
  3. Figures to the right indicate full marks.
  4. Neat flow sheets must be drawn whenever necessary.

- Q.1** Explain and discuss the importance of the following **20**
- a) Viscosity index
  - b) Reid Vapor Pressure
  - c) Flash point and fire point
  - d) ASTM and TBP distillation
- Q.2**
- a) What is the importance of evaluation of crude oil and name the list of different products with their boiling range, obtained from an oil refinery? **10**
  - b) Distinguish between pump around and pump back reflux in atmospheric distillation unit. **10**
- Q.3**
- a) Explain in detail the process of visbreaking with neat flow diagram. **10**
  - b) Explain the process of fluid catalytic cracking (FCC) with neat flow diagram. **10**
- Q.4**
- a) Explain HF alkylation process and give comparison between HF alkylation and sulfuric acid alkylation process. **10**
  - b) Discuss in brief the process of furfural extraction process for lubricating oil. What are the advantages of using furfural over phenol as a solvent? **10**
- Q.5**
- a) What are the different applications of Asphalt? Explain air blowing process for Bitumen manufacturing with neat flow diagram. **10**
  - b) Why isomerization is carried out in refinery? Explain the process of Isomerization in detail. **10**
- Q.6** Write short notes on following **20**
- a) Liquid Paraffin
  - b) Classification of Refineries
  - c) Composition of crude oil
  - d) Selecto forming process