

- N.B.:** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** questions out of remaining **six** questions.
 (3) **Figures** to the right indicate **full** marks.

1. Define and discuss importance of following :— 20
 - (a) Octane number and cetane number
 - (b) Pour Point and Smoke Point
 - (c) API gravity and characterisation factor
 - (d) Sweetening and Desulfurisation.

2. (a) Explain Catalytic reforming process giving operating conditions, catalysts and neat flow diagram. 10
 (b) Explain sulfuric acid alkylation process with neat flow diagram. And explain how it differs from Hf acid alkylation Process. 10

3. (a) Give different testing methods to test quality of kerosene. Explain any one method in short with suitable diagram. 10
 (b) Write in detail the process of visbreaking giving operation conditions and neat flow diagram. 10

4. Distinguish between following :— 20
 - (a) Hydro treatment and Hydro desulfurisation
 - (b) Thermal Cracking and Catalytic Cracking
 - (c) Steam Cracking and Steam Reforming
 - (d) Thermofor and Houdri flow Cracking.

5. (a) Give different types of Asphalt. And explain air blowing of Bitumen Process with proper flow diagram. 10
 (b) Write and explain different tower arrangements used for crude distillation in short with neat diagram. 10

6. (a) Explain Delayed coking operation with suitable flow diagram and operating conditions. 10
 (b) Explain Hydro cracking process giving reactions, reaction conditions, feed stock and catalyst used with neat diagram. 10

7. (a) Explain the process of dehydration and desalting of crude oil with suitable diagram. Explain why it is required? 10
 (b) Write notes on following (any two) :— 10
 - (i) Catalyst deactivation and poisoning
 - (ii) Safety and pollution control in Petrochemical Industries
 - (iii) Fluid Catalytic Cracking (FCC).