

17651

21718

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:** **20**
- List the name of OPEC countries with their percentage crude oil production.
 - List the name of any four Indian refineries with their capacity.
 - State the constituents and characteristics of crude oil.
 - Explain desalting of crude oil.
 - Crude oil is often called as black gold. Give reason.
 - List any four chemicals derived from C₄ hydrocarbon.
 - Draw flow diagram for the manufacture of methanol.

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- 2. Attempt any FOUR of the following:** **16**
- a) Explain the crude oil refining by atmospheric distillation.
 - b) Explain any one method of hazardous waste treatment in petrochemical industry.
 - c) Define the following:
 - (i) Octane number
 - (ii) Cetane number
 - d) Explain the manufacturing of MTBE.
 - e) Write reactions involved in the manufacture of styrene from benzene and ethylene.
- 3. Attempt any FOUR of the following:** **16**
- a) Explain the H_2SO_4 alkylation process.
 - b) Define the following term:
 - (i) Aniline point
 - (ii) Power point
 - (iii) Cloud point
 - (iv) Fire point
 - c) What is BTX? What are their uses?
 - d) What is visbreaking? Describe it with neat diagram.
 - e) Explain the manufacturing of formaldehyde with neat diagram.
- 4. Attempt any FOUR of the following:** **16**
- a) Differentiate between catalytic cracking and thermal cracking.
 - b) Explain principle of reforming with reactions involved in it.
 - c) What is the importance of vacuum distillation in petroleum refining?
 - d) Explain the manufacture of ethylene oxide.
 - e) List the chemicals derived from C_1 and C_2 hydrocarbons with their uses.

5. Attempt any TWO of the following:**16**

- a) Describe the manufacture of propylene oxide with neat flow diagram.
- b) Explain any one isomerization process with neat flow diagram.
- c) List various fractions obtained in distillation of crude oil with their uses and boiling ranges.

6. Attempt any TWO of the following:**16**

- a) Explain the manufacture of butadiene with neat flow diagram.
 - b) Explain the:
 - (i) Factors affecting the price of crude oil (four points)
 - (ii) Esterification process
 - c) Explain:
 - (i) Hydrogenation
 - (ii) Hydrocracking with neat flow sheet
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