

# 17651

11819

**3 Hours / 100 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answer with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. a) Attempt any THREE of the following: 12
- (i) What is OPEC? List the names of six major oil producing countries in the world.
  - (ii) List four chemicals obtained from C<sub>4</sub> hydrocarbons. Give uses of any two.
  - (iii) Draw flow sheet for manufacture of methanol.
  - (iv) List the different factors affecting the price of crude oil.
- b) Attempt any ONE of the following: 6
- (i) Explain with diagram desalting of crude oil.
  - (ii) Write difference between thermal cracking and catalytic cracking (four points)

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- What harm is caused by the presence of sulphur in the Petroleum Product.
  - Draw flow sheet of ethylene oxide.
  - Explain vacuum distillation process in petroleum refining.
  - What is BTX? What are their uses.
  - List out two chemicals derived from  $C_3$  and  $C_2$  hydrocarbons with their uses.
- 3. Attempt any FOUR of the following:** **16**
- Draw flow sheet for manufacture of Acetaldehyde by oxidation of ethylene.
  - List out major refineries located in India with their approximate crude oil production in tons per year.
  - Write manufacturing process of butadiene (No flow sheet)
  - Write reactions involved in reforming process.
  - Explain the importance of vacuum distillation in petroleum refining.
- 4. a) Attempt any THREE of the following:** **12**
- Give the difference between petroleum refining and Petrochemical Industry. (four points)
  - Describe with flow sheet manufacturing process of 'MTBE'
  - Explain manufacturing process of ethanol with flow sheet.
  - Crude oil is often called black gold. Explain why?
- b) Attempt any ONE of the following:** **6**
- Explain any one coking process.
  - Define the following:
    - Flash Point
    - Octane number
    - Calorific Value
    - Pour point

- 5. Attempt any TWO of the following:** **16**
- a) Explain any one biological process used for treatment of waste water of Petrochemical Industry.
  - b) What is isomerisation in refining operation? Describe the process of isomerisation with flow sheet.
  - c) Explain with flow sheet manufacturing of styrene.
- 6. Attempt any TWO of the following:** **16**
- a) Explain hydrocracking process with flow sheet.
  - b) Write two uses of the following:
    - (i) Methanol
    - (ii) Butadiene
    - (iii) Butyle acetate
    - (iv) MTBE
  - c) Explain atmospheric distillation process with neat diagram. List the fractions obtained with its boiling point range.
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