

17651

16117

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 answers 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) Write the names of Indian companies operating in the field of petroleum and petrochemical sectors. (four each)
 - (ii) Draw flow sheet for ethanol manufacture.
 - (iii) What is BTX? What are their uses?
 - (iv) What is desalting of crude oil? Explain.
- b) **Attempt any ONE of the following:** **6**
- (i) Name the unit operations involved in the refining of petroleum. Explain the atmospheric distillation process carried out in petroleum refinery.
 - (ii) Describe any one process of alkylation with flow sheet.

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- 2. Attempt any FOUR of the following:** **16**
- a) What is OPEC? List name of four major oil producing countries in the world.
 - b) Write reactions involved in manufacture of styrene from benzene and ethylene.
 - c) How crude oil is separated by vacuum distillation?
 - d) Write different hydrocarbons obtained from C_1 and C_2 write their uses (any two)
 - e) Explain in brief crude oil pretreatment process. (any two)
- 3. Attempt any FOUR of the following:** **16**
- a) Draw neat and clean flow sheet of methanol process.
 - b) Why crude oil is called black gold?
 - c) Write manufacturing process of acetaldehyde.
 - d) Define the following:
 - (i) Aniline point
 - (ii) Cloud point
 - e) What is the importance of vacuum distillation in petroleum refining?
- 4. a) Attempt any THREE of the following:** **12**
- (i) State the constituents and characteristics of crude oil.
 - (ii) Describe with flow sheet the process for the manufacture of propylene oxide.
 - (iii) What are different applications of butadiene? (any four)
 - (iv) What harm is caused by presence of sulphur in the petroleum product?
- b) Attempt any ONE of the following:** **6**
- (i) Explain any one biological process used for treatment of waste water of petrochemical industry.
 - (ii) Explain principle of reforming with reactions involved in it.

- 5. Attempt any TWO of the following: 16**
- Explain any one Isomerization process with flow chart and reactions involved in it.
 - What is Visbreaking? Describe a process of Visbreaking with diagram.
 - List various fractions obtained in distillation of crude oil with their uses and boiling ranges.
- 6. Attempt any TWO of the following: 16**
- Differentiate between catalytic cracking and thermal cracking. Explain fluidized bed catalytic cracking with diagram.
 - Write two uses each of the following:
 - MTBE
 - Ethanol
 - Propylene oxide
 - Formaldehyde
 - Explain the manufacturing process of ethylene oxide with flow chart.
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