

17651

11718

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) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) 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 with their percentage share in world crude oil production.
 - (ii) Give the classification of crude.
 - (iii) Define octane number and calorific value.
 - (iv) List out two chemicals derived from C1 and C2 hydrocarbons. State 2 uses of each product.
- b) Attempt any ONE of the following: 6
 - (i) Describe any one Alkylation process with flow sheet.
 - (ii) With a neat flowsheet explain the manufacture of formaldehyde.

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) What are the various properties of crude oil? (Any four)
 - b) What is the difference between petroleum refineries and petrochemical industries? Name any two petroleum refinery and petrochemical industry.
 - c) What are the different factors affecting the price of crude oil?
 - d) Why crude oil is called Black Gold? What are its advantages and disadvantages over other energy sources?
 - e) List various fractions obtained in distillation of crude oil with their boiling ranges.
 - f) What is desalting of crude oil ? Explain with diagram.
- 3. Attempt any FOUR of the following:** **16**
- a) State the uses of hydrocarbons / fractions obtained from petroleum distillation.
 - b) Name and explain unit operations in separation process of refining of petroleum. (Any four)
 - c) Explain any one method of hazardous waste treatment.
 - d) Why separation of crude oil is carried in vacuum distillation? Why low sulphur crude is more preferred?
 - e) Explain atmospheric distillation process with neat diagram.
- 4. a) Attempt any THREE of the following:** **12**
- (i) What is the difference between thermal cracking and catalytic cracking? What are the main advantages of catalytic cracking?
 - (ii) What is polymerization? State three methods of polymerization.
 - (iii) What is BTX? What are their uses?
 - (iv) List the products obtained from C4 hydrocarbons. State 2 uses of each product.

- b) **Attempt any ONE of the following:** **6**
- (i) Explain moving bed catalytic cracking process with flow sheet.
 - (ii) Give the reaction involved in the formation of ethylene oxide and styrene.
5. **Attempt any TWO of the following:** **16**
- a) What is catalytic cracking process-fluidized bed type? Explain with flow sheet.
 - b) Draw the flow sheet for high pressure platinum catalyst reforming process. Explain the process.
 - c) Explain the process of hydrocracking with flow sheet and reactions involved in it.
6. **Attempt any FOUR of the following:** **16**
- a) Draw the flowsheet for the manufacture of methanol.
 - b) Describe the manufacturing process of propylene oxide with neat flowsheet.
 - c) List the name of four petrochemicals derived from C3 hydrocarbons. Give any one use each.
 - d) Draw the flowsheet for the manufacture of MTBE.
 - e) Explain the udex process for the recovery of BTX.
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