

Total No. of Questions : 10]

SEAT No. :

P3994

[4959]-1178

[Total No. of Pages : 2

B.E. (Chemical)

**a-CHEMICAL PROCESS SYNTHESIS
(2012 Course) (End Sem) (Semester - I)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to candidates:

- 1) Neat diagrams must be drawn wherever necessary.*
- 2) Figures to the right indicate full marks.*
- 3) Assume suitable data, it necessary.*

SECTION - I

Q1) a) Explain two approaches to chemical process design. **[5]**

b) Explain in short overall process design. **[5]**

OR

Q2) Explain the effect of reactor pressure on the reactor volume and selectivity. **[10]**

Q3) Explain the role of reactor concentration on equilibrium conversion with suitable example. **[10]**

OR

Q4) Discuss three stage evaporator. **[10]**

Q5) a) Discuss thermal coupling for direct and indirect distillation sequencing. **[8]**

b) Explain heat integration in sequencing of simple distillation column. **[8]**

OR

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Q6) a) Explain direct and indirect sequences of simple distillation columns for a three component separation. [8]

b) Discuss thermal coupling of the prefractionator arrangement. [8]

Q7) a) Explain integration of refrigeration cycles. [8]

b) Explain heat recovery problem with one hot stream and one cold stream with appropriate example. [8]

OR

Q8) a) Discuss overall heat exchanger network and utilities. [8]

b) Discuss integration of heat pump. [8]

Q9) a) Explain the serveso reaction system. [9]

b) What is vapor cloud explosion. [9]

OR

Q10) Write short note on

a) Quantitative measures of inherent safety. [9]

b) Toxic release. [9]

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