

Total No. of Questions : 12]

SEAT No. :

**P1165**

**[4659] - 295**

[Total No. of Pages : 2

**B.E.Chemical (Semester - I)**  
**CHEMICAL PROCESS SYNTHESIS (Elective - II (a))**  
**(2008 Pattern)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) Answer three questions from Section - I and three questions from Section - II .*
- 2) Answers to the two sections should be written in separate answer books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Use of logarithmic tables, slide rule, Mollier Charts, electronic pocket calculator and steam tables is allowed.*
- 6) Assume suitable data, if necessary.*

**SECTION - I**

**Q1) a)** Explain the concept of Onion Model. **[10]**

b) Write in brief about various considerations in process design. **[8]**

OR

**Q2) a)** Discuss idealized reactor model. **[9]**

b) Explain in short different parameters in choice of reactor. **[9]**

**Q3)** Explain the effect of following parameters on choice of reactor: **[16]**

a) Temperature.

b) Catalyst.

OR

**Q4) a)** Explain idealized reactor model for ideal batch reactor, mixed and plug flow reactor. **[10]**

b) Explain various parameters which govern reactor performance. **[6]**

**Q5) a)** Discuss various types of dryers. **[8]**

b) Explain extractive distillation with suitable example. **[8]**

OR

**P.T.O.**

**Q6)** Write notes on: [16]

- a) Absorption.
- b) Centrifugal separation.

**SECTION - II**

**Q7)** Explain with sketches the concept of heat integration of sequences of simple distillation column. [16]

OR

**Q8)** a) Discuss integration of refrigeration cycle. [8]

b) Explain threshold problems in heat exchanger network. [8]

**Q9)** a) What are composite curves? How you will obtain them? [8]

b) How a problem table algorithm is formed? [8]

OR

**Q10)**a) Explain the concept problem table algorithm. [8]

b) Explain graphically heat recovery pinch. [8]

**Q11)**a) Explain the intensification of hazardous materials. [8]

b) Write in brief on: [10]

i) Toxic releases from processes.

ii) Fire hazards.

OR

**Q12)** Write short notes on. [18]

a) Unconfined vapour cloud explosion.

b) Hazard triangle.

