

Total No. of Questions :10]

SEAT No. :

P3411

[5670] -687

[Total No. of Pages :2

B.E. (Chemical)

ADVANCE SEPARATION PROCESSES
(2015 Pattern) (EndSem.) (409345D) (Elective-II)

Time :2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
- 2) Neat Diagrams must be drawn wherever necessary.
- 3) Assume suitable data, if necessary.

Q1) Explain azeotropic distillation with skematic diagram and give the industrial applications. In detail. **[10]**

OR

Q2) a) Explain the residue curve maps. **[5]**

b) Give the details of pressure swing distillation. **[5]**

Q3) Explain the working principle and process design aspects of the reactive distillation . Give the industrial application in detail. **[10]**

OR

Q4) Illustrate the industrial applications of the following process. **[10]**

a) Reversible chemical complexation

b) Reactive crystallization.

Q5) a) Give the advantages of the membrane technology over other filtration techniques. **[8]**

b) Explain the membrane fouling in detail. **[8]**

OR

Q6) a) Explain the mass transfer aspects and design parameters of RO process. **[8]**

b) Give the industrial application of the following process.

i) Pervaporation

ii) Electro dialysis. **[8]**

P.T.O.

Q7) a) Explain TSA and PSA with neat diagram [9]

b) Explain the types of chromatography and give the industrial application of liquid chromatography in detail. [9]

OR

Q8) a) Explain the characteristics of solids and their selection for various application in chromatography [9]

b) Explain the chromatography column design and filling in detail with neat diagram. [9]

Q9) Write the notes on the following [16]

a) Molecular sieves

b) Froth Flotation.

OR

Q10)a) Explain collapse and drainage phenomena [8]

b) Illustrate the applications of zone electrophoresis and zone refining. [8]

