Code No: R05010803 **R05** **Set No. 2**

I B.Tech Examinations,June 2011
INTRODUCTION TO CHEMICAL ENGINEERING
Chemical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) What is simple batch distillation? Explain with a neat diagram.
   (b) Differentiate between distillation and absorption. [8+8]
2. Give a detailed account of humidity and saturation. [16]
3. (a) Describe the following terms in gas liquid operations:
      i. Weeping
      ii. Hydraulic gradient
      iii. Hold up
      iv. Axial mixing.
   (b) Describe operation of packed column for gas liquid operations. [8+8]
4. (a) Write short notes on the following with suitable diagrams:
      i. Flow arrangements in heat exchangers
      ii. Variation of fluid temperatures in heat exchangers.
   (b) Write a brief note on recuperators. [6+6+4]
5. (a) Explain interphase mass transfer and mass transfer Coefficient.
   (b) Describe the overall mass transfer coefficient in terms of individual film coefficients. [8+8]
6. Write in detail about the following with neat diagrams:
   (a) Spray dryer
   (b) Drum dryer [8+8]
7. (a) Explain the mechanical unit operations involved in chemical processes?
   (b) Distinguish between unit operations and unit processes. [12+4]
8. (a) State the Newton's law of viscosity. Describe non Newtonian fluids with the help of a shear stress vs shear rate diagram.
   (b) What is fluid head? Describe various fluid head components contain in the total energy balance for steady flow. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R05010803 **R05** **Set No. 4**

I B.Tech Examinations,June 2011
INTRODUCTION TO CHEMICAL ENGINEERING
Chemical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Write short notes on the following with suitable diagrams:
   i. Flow arrangements in heat exchangers
   ii. Variation of fluid temperatures in heat exchangers.
   (b) Write a brief note on recuperators. [6+6+4]
2. Write in detail about the following with neat diagrams:
   (a) Spray dryer
   (b) Drum dryer [8+8]
3. (a) What is simple batch distillation? Explain with a neat diagram.
   (b) Differentiate between distillation and absorption. [8+8]
4. Give a detailed account of humidity and saturation. [16]
5. (a) Explain the mechanical unit operations involved in chemical processes?
   (b) Distinguish between unit operations and unit processes. [12+4]
6. (a) Describe the following terms in gas liquid operations:
   i. Weeping
   ii. Hydraulic gradient
   iii. Hold up
   iv. Axial mixing.
   (b) Describe operation of packed column for gas liquid operations. [8+8]
7. (a) State the Newton's law of viscosity. Describe non Newtonian fluids with the help of a shear stress vs shear rate diagram.
   (b) What is fluid head? Describe various fluid head components contain in the total energy balance for steady flow. [8+8]
8. (a) Explain interphase mass transfer and mass transfer Coefficient.
   (b) Describe the overall mass transfer coefficient in terms of individual film coefficients. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R05010803 **R05** **Set No. 1**

I B.Tech Examinations,June 2011
INTRODUCTION TO CHEMICAL ENGINEERING
Chemical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) What is simple batch distillation? Explain with a neat diagram.
   (b) Differentiate between distillation and absorption. [8+8]
2. (a) Write short notes on the following with suitable diagrams:
      i. Flow arrangements in heat exchangers
      ii. Variation of fluid temperatures in heat exchangers.
   (b) Write a brief note on recuperators. [6+6+4]
3. (a) Explain the mechanical unit operations involved in chemical processes?
   (b) Distinguish between unit operations and unit processes. [12+4]
4. Write in detail about the following with neat diagrams:
   (a) Spray dryer
   (b) Drum dryer [8+8]
5. (a) Explain interphase mass transfer and mass transfer Coefficient.
   (b) Describe the overall mass transfer coefficient in terms of individual film coefficients. [8+8]
6. (a) Describe the following terms in gas liquid operations:
      i. Weeping
      ii. Hydraulic gradient
      iii. Hold up
      iv. Axial mixing.
   (b) Describe operation of packed column for gas liquid operations. [8+8]
7. Give a detailed account of humidity and saturation. [16]
8. (a) State the Newton's law of viscosity. Describe non Newtonian fluids with the help of a shear stress vs shear rate diagram.
   (b) What is fluid head? Describe various fluid head components contain in the total energy balance for steady flow. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R05010803 **R05** **Set No. 3**

I B.Tech Examinations,June 2011
INTRODUCTION TO CHEMICAL ENGINEERING
Chemical Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Give a detailed account of humidity and saturation. [16]

2. (a) State the Newton's law of viscosity. Describe non Newtonian fluids with the help of a shear stress vs shear rate diagram.
   (b) What is fluid head? Describe various fluid head components contain in the total energy balance for steady flow. [8+8]

3. (a) What is simple batch distillation? Explain with a neat diagram.
   (b) Differentiate between distillation and absorption. [8+8]

4. (a) Write short notes on the following with suitable diagrams:
      i. Flow arrangements in heat exchangers
      ii. Variation of fluid temperatures in heat exchangers.
   (b) Write a brief note on recuperators. [6+6+4]

5. (a) Explain the mechanical unit operations involved in chemical processes?
   (b) Distinguish between unit operations and unit processes. [12+4]

6. (a) Describe the following terms in gas liquid operations:
      i. Weeping
      ii. Hydraulic gradient
      iii. Hold up
      iv. Axial mixing.
   (b) Describe operation of packed column for gas liquid operations. [8+8]

7. (a) Explain interphase mass transfer and mass transfer Coefficient.
   (b) Describe the overall mass transfer coefficient in terms of individual film coefficients. [8+8]

8. Write in detail about the following with neat diagrams:
   (a) Spray dryer
   (b) Drum dryer [8+8]

⋆ ⋆ ⋆ ⋆ ⋆