Q.24 Describe the construction and working of plug flow reactor with the help of neat diagram.

Q25 Write short note on any two of the following;

a) Enthalpy　　　　b) Order of reaction

c) q-line　　　　　d) Reflux ratio

5th Sem. / Chemical (Pulp & Paper)
Subject : Chemical Engineering Operations

Time : 3 Hrs.　　　　　　　　　　　　　　M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory.　　　　　　　　(6x1=6)

Q.1 The term Entrainer is used in which Distillation process

a) Azeotropic　　　　　b) Flash

c) Steam　　　　　　　d) Fractional

Q.2 Crystallization is based on the difference of

a) Melting point　　　　b) Boiling point

c) Pressure　　　　　　d) Solubility

Q.3 Separation process based on the difference of boiling point is called

a) Crystallization　　　b) Drying

c) Distillation　　　　　d) Adsorption

Q.4 Which of the following is not an application of membrane separation

a) RO　　　　　　　　b) Microfiltration

c) Dialysis　　　　　　d) Fractional Distillation

Q.5 Which of the following is a closed system?

a) A sealed container of gas

b) An open bottle of water

c) The atmosphere

d) None of these

Q.6 Molecularity of a reaction refers to :

a) The order of the reaction

b) The number of molecules involved in the reaction step

c) The rate of the reaction

d) The activation energy of the reaction

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define Volatility.

Q.8 Explain Raoult's law.

Q.9 Define Supersaturation.

Q.10 What do you mean by a system.

Q.11 Write the full form of RO.

Q.12 Expand PFR.

Section-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Write the procedure for calculating the number of plates by McCabe Theile Method.

Q.14 Write a short note on Reverse Osmosis process.

Q.15 Explain Meir's saturation theory.

Q.16 With one example of each explain closed and open system.

Q.17 Differentiate between elementary and non-elementary reactions.

Q.18 Describe the mechanism of membrane separation.

Q.19 Derive Rayleigh's equation.

Q.20 Write the methods of achieving super saturation.

Q.21 State and explain ideal Gas law and write any one value of R with its units.

Q.22 Explain the variables affecting reaction rate.

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 With the help of neat diagram explain the construction and working of Agitated tank crystallizer.