

Total No. of Questions : 6]

SEAT No. :

P1977

[5145]-301

[Total No. of Pages : 2

S.Y.B.Pharm.

**2.3.1 T : PHYSICAL PHARMACEUTICS - I
(2013 Pattern) (Semester - III)**

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answers to the two sections should be written in separate books.*
- 2) *Neat diagram must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*

SECTION - I

Q1) Attempt any one.

Explain with suitable example, phase diagram for two component system containing liquid phases, and also write the applications of phase rule. **[10]**

OR

What are aerosols? Explain the principle involved in the two phase system aerosols.

Q2) Answer any five

[15]

- a) What is ideal gas equation? Explain the Van der Waals Equation for Real Gases.
- b) Explain the deviations to Raoult's law?
- c) Explain the Claude's process for liquefaction of gases.
- d) Draw a neat labeled triple point phase diagram for one component system.
- e) A solution containing 9g of sucrose dissolved in 90g of water has a boiling point of 100.149°C. What is the molecular weight of sucrose if ebullioscopic constant (K_b) for water is 0.51?
- f) Write the van't Hoff Equation for Osmotic Pressure.
- g) Explain the Boiling point diagram of an ideal binary mixture.

P.T.O.

Q3) Write short notes (Any two) [10]

- a) Osmotic Pressure as colligative property.
- b) Specific and equivalent conductance.
- c) Three component system.
- d) Depression of freezing point as colligative property.

SECTION - II

Q4) Attempt any one.

Explain crystallization and methods of Crystal analysis. [10]

OR

- a) Write a note on Polymorphism. [6]
- b) Discuss BCS classification in detail. [4]

Q5) Attempt any five [15]

- a) Define solubility, Intrinsic solubility and saturation solubility.
- b) Discuss drug and solvent properties affecting Distribution coefficient.
- c) Define glass transition temperature and its significance in pharmacy.
- d) Define and differentiate Entropy and Enthalpy.
- e) State laws of thermodynamics.
- f) Discuss the types of interaction between Solute and solvent.
- g) Explain combined effect of pH and Solvents on solubility.

Q6) Write short notes (Any two) [10]

- a) Solubility Parameter.
- b) Nerst distribution law and its Applications.
- c) Factors affecting crystallization and crystal size.
- d) X-Ray Crystallography.

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