Total No. of Questions : 6]

SEAT No. :

**P1977**

[Total No. of Pages : 2

# [5145]-301
# 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 100.149ºC. 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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