

B.Pharm II Year I Semester (R13) Supplementary Examinations June 2017

PHYSICAL PHARMACY – I

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What is the type of intermolecular interaction involved when sodium chloride is dissolved in water?
 - (b) Define a phase. Write two examples of coexisting phases.
 - (c) Define heat content. Describe its applications.
 - (d) Why refractive indices of liquids are always higher than one?
 - (e) Explain why colligative properties are applicable to dilute solutions.
 - (f) Why do ionic compounds dissolve only in polar liquids?
 - (g) What is the pH of 1N ammonia solution? The ionization constant of ammonium hydroxide at 25°C is 1.74×10^{-5} .
 - (h) Describe the applications of pH.
 - (i) Define a buffer solution. Give one example.
 - (j) What are isosmotic and isotonic solutions? Give examples.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 Explain the importance of intermolecular forces in understanding of physical and chemical properties of substances.

OR

- 3 (a) State and explain the laws of crystallography.
(b) With the help of a diagram, explain the behavior of phenol and water system.

UNIT – II

- 4 State and explain the second law of thermodynamics. What is free energy and entropy?

OR

- 5 Explain the process of inducing dipole moment in a non-polar molecule. Discuss the principle, construction and working of Abbe refractometer.

UNIT – III

- 6 With the help of a labeled diagram, explain the Landsberger method for determination of molecular mass of a solute.

OR

- 7 Describe Arrhenius theory of electrolytic dissociation. Write the evidences in favor of this theory.

UNIT – IV

- 8 Describe the modern theories of acids and bases.

OR

- 9 Describe the principle and experiment procedure for the determination of pH by electrometric method.

UNIT – V

- 10 (a) Calculate the amounts of acid and sodium acetate required for preparation of 1 liter of buffer of pH 5.6. The $pK_a = 4.735$.
(b) Write the effect of dilution, addition of salt and temperature on the pH of a buffer solution.

OR

- 11 Explain various methods of adjusting the tonicity and pH.