

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

PHYSICAL PHARMACY – I

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Explain the concept of hydrogen bonding.
 - Define entropy. What are its units?
 - What is meant by degree of dissociation? Write two applications.
 - Define Lewis acid and base with examples.
 - Define a buffer solution. Give one example.
 - Define the terms isotonic solution and hypotonic solution. Give one example for each.
 - How do you adjust the pH of a solution?
 - State and explain Raoult's law for vapour pressure lowering.
 - Explain the process of inducing dipole moment in a non-polar molecule.
 - Define phase. Give two examples of coexisting phases.

PART – B

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

UNIT – I

- 2 Define ideal gases and real gases. Describe the deviations of gases from the ideal gas equation.
- OR**
- 3 Describe various methods of liquefaction of gases. What is Bragg's equation?

UNIT – II

- 4 State and explain the third law of thermodynamics. Mention all the definitions of a spontaneous process.
- OR**
- 5 Describe the principle, construction and working of Abbe refractometer. What is dipole moment?

UNIT – III

- 6 Explain the experimental method for the determination of molecular mass of a solute using vapour pressure method.

OR

- 7 Explain modern theories of electrolytic dissociation of strong electrolytes.

UNIT – IV

- 8 Explain the principle and method involved in the determination of dissociation constant by conductivity method. Define Lewis acid and base.

OR

- 9 Describe a method for calculating hydrogen ion concentration of a given solution. Calculate the pH of 0.025 N sodium hydroxide solution.

UNIT – V

- 10 (a) Explain the mechanisms of action of acid and base buffers with suitable examples.
(b) Find the pH of the buffer mixture, obtained by mixing 0.01MKW and 0.01 MHCN solution, in equal volumes K_a of HCN = 4.0×10^{-10} .
- OR**
- 11 (a) Describe the method for estimation of the buffer capacity of a solution.
(b) The total bicarbonate buffer concentration in the normal blood is about 0.026 moles/liter. What would be its maximum buffer capacity?