

GUJARAT TECHNOLOGICAL UNIVERSITY

BPHARM – SEMESTER – II • EXAMINATION – WINTER 2012

Subject code: 220003

Date: 28-01-2013

Subject Name: Pharmaceutical Chemistry - II

Time: 10:30 am – 01:30 pm

Total Marks: 80

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q-1 (A) Define the following terms: [4]

- (1) Adsorption (2) Zero order reaction
(3) Specific conductance (4) Catalyst

(B) What is Photochemistry? Draw the Jablonski diagram & explain the Consequences of light absorption. [6]

(C) What is Refractive Index? How it is important for the field of Pharmacy? Enlist the factors affecting it & its uses. [6]

Q-2 (A) The Vp of solvent-A (mol mass=62) is 504 mmHg at 289K. If 5 gm of a Compound-B are dissolved in 55 gm of solvent-A, at this temperature, The Vp falls to 481 mmHg. Calculate the mol. mass of compound-B. Assume that the solution of B in solvent-A is very dilute. [4]

(B) Define Colligative property. Enlist different types of it & explain in detail any two. [6]

(C) Explain the 1st, 2nd and 3rd Laws of Thermodynamics in detail. [6]

Q-3 (A) A conductance cell is being filled with a 0.02 M solution of KCl at 25°C, Showed a resistance of 149 ohms. The specific conductance of the KCl Solution used is 2.14×10^{-3} mho/cm. the same cell containing 0.01M NaCl Solution gave an electrical resistance of 290 ohms. Calculate the specific & Equivalent conductance of the NaCl solution. [4]

(B) What is Surface Tension & Parachor? How they are related to each other? Mention the factors affecting & uses of Surface Tension. [6]

(C) Why some compound shows Optical Rotation? How the technique is useful to the sugar industry? Write the other applications, drawbacks & factors affecting Optical Rotation. [6]

Q-4 (A) At 25°C, an aqueous solution of Iodine containing 0.0379 gm/lit. is in Equilibrium with a carbon tetrachloride solution containing 5.753 gm/lit. The solubility of Iodine in water at 25°C is 0.34 gm/lit. Find the solubility of Iodine in carbon tetrachloride. [4]

(B) State the Distribution Law. Explain Partition Coefficient with suitable example in detail. [6]

(C) State & explain the following Laws. [6]

- (1) Henry's Law (2) Lambert-Beer's Law (3) Raoult's Law
(4) Zeroth Law of Thermodynamics

- Q-5 (A) Write a note on “Acid- Base Enzyme Catalysis”. [4]
(B) Define Adsorption & explain Freundlich and Gibbs adsorption isotherms. [6]
(C) Explain Phase equilibria & Phase rule. Discuss one component system
With suitable example. [6]
- Q-6 (A) Discuss the basic principles of Radioactivity. [5]
(B) Differentiate between the followings. [6]
(1) Ideal solution & Real solution
(2) Fluorescence & Phosphorescence
(3) Homogeneous & Heterogeneous catalysts
(4) α -rays & γ -rays
(5) Absorption & Adsorption
(6) 1st order reaction & 2nd order reaction
(C) Explain the Debye- Huckel theory in detail. [5]
- Q-7 (A) Enlist the advantages, drawbacks and applications of radioactive rays. [4]
(B) Write a detailed account on radioactivity measurement with special
Reference to G.M.Counter. [6]
(C) What is Viscosity? How it is measured experimentally? Enlist the
Factors affecting and uses of Viscosity. [6]
