

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. - SEMESTER-II • EXAMINATION – SUMMER-2016

Subject code: 2220002

Subject Name: Pharmaceutical Chemistry-II (Physical Chemistry)

Time: 10:30 AM to 1:30 PM

Date: 08/06/2016

Instructions:

Total Marks: 80

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

- Q.1** (a) Explain in detail Debye-Huckel theory. 06
(b) Define Quantum yield of Photochemical reaction. Give reasons for high & low Quantum yield. 05
(c) State and explain Raoult's Law. 05
- Q.2** (a) Differentiate the following pair: 06
(1) Molecularity of a reaction & order of a reaction.
(2) Physical absorption & Chemisorption.
(3) Homocatalysis & Heterocatalysis.
(b) Explain Characteristics of Catalyst. 05
(c) What is Refractive Index? Give its importance in Pharmacy. Enlist the factors affecting refractive index. 05
- Q.3** (a) Write a note on Gibb's adsorption equation & isotherm. 06
(b) State the Distribution Law. Explain Partition Coefficient with suitable examples. 05
(c) Explain terms: (1) Parachor (2) Dipole Moment (3) Specific Conductance (4) Optical rotation (5) Rheochor 05
- Q.4** (a) What is Phase-rule? Describe phase diagram of water. 06
(b) Discuss various methods for the determination of Surface tension. 05
(c) Define & Enlist Colligative Properties. Explain any two in detail. 05
- Q.5** (a) Define Viscosity & explain its application. Discuss Ostwald's Viscometer. 06
(b) Derive Reaction rate constant & half-life for first order reaction kinetics. 05
(c) Write a note on "The Carnot Cycle". 05
- Q.6** (a) State & explain First law of Thermodynamics with various modifications. 06
(b) A solution of 0.250g of a substance in 50.0 l of acetic acid has freezing point of 0.320°C below that of pure acid 16.6°C. Calculate the molecular mass of substance. (specific Latent heat of Fusion of acetic acid is 180.75 J/g, gas constant, R=8.314 J/K*mol). 05
(c) Enlist various methods for the determination of order of reaction. 05
- Q.7** (a) What is Photochemistry? Draw a Jablonski diagram & explain consequences of Light absorption. 06
(b) Note on Acid-base Enzyme Catalysis. 05
(c) Give a difference between ideal & real Solution. 05
