GUJARAT TECHNOLOGICAL UNIVERSITY
BPHARM – SEMESTER II • EXAMINATION – SUMMER • 2015

Subject code: 2220002   **Date: 04-06-2015**
Subject Name: Pharmaceutical Chemistry - II (Physical Chemistry)
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)**	State and explain Raoult's law of dilute solution. Discuss deviation of real solution from the Law.	**06**
	(b)	Define Colligative property. Enlist different types of colligative properties. Describe briefly lowering of the Vapour pressure.	**05**
	(c)	Write note on Debye–Huckel theory.	**05**
Q.2	**(a)**	What is surface tension? Discuss the measurement of surface tension by drop formation method.	**06**
	(b)	Explain: (i) Dipole moment (ii) Specific rotation (iii) Refractive index	**05**
	(c)	Define viscosity & write units of it. Describe principle of Ostwald's viscometer.	**05**
Q.3	**(a)**	Explain: Quantum efficiency, Florescence, Photochemical reactions.	**06**
	(b)	Discuss consequences of light absorption by matter. Give applications of photochemistry in pharmacy.	**05**
	(c)	State and explain Lambert – Beer law.	**05**
Q.4	**(a)**	What do you mean by partition coefficient? How it is useful in pharmacy? State and explain distribution law.	**06**
	(b)	Explain the terms (i) Heat of Formation and Heat of solution (ii) Entropy and Enthalpy.	**05**
	(c)	Differentiate the following: (i) Isothermal and adiabatic process (ii) Reversible and irreversible process.	**05**
Q.5	**(a)**	Explain: Equivalence conductance, Molarity and molality, Phase rule.	**06**
	(b)	What is adsorption? Discuss applications of adsorption in pharmacy.	**05**
	(c)	Write a note on Langmuir Adsorption isotherms.	**05**
Q. 6	**(a)**	Write a detail note on First law of thermodynamics.	**06**
	(b)	What is the basic principle of Joule –Thomson effect?	**05**
	(c)	Write a note on methods for determination of order of reaction.	**05**
Q.7	**(a)**	Explain "Activation energy" of a chemical reaction. Describe effects of temperature on Rate of reaction.	**06**
	(b)	What is catalytic reaction? Write a note on Collision theory for reaction rates.	**05**
	(c)	Derive reaction rate constant, half life of first order reaction kinetics.	**05**

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