Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BPHARM – SEMESTER II • EXAMINATION – WINTER • 2014

Subject code: 2220002 Date: 03-12-2014

Subject Name: Pharmaceutical Chemistry-II (Physical Chemistry)

Time: 02:30 pm - 05:30 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: Adsorption. Explain Freundlich Adsorption isotherms.	**06**
	(b)	Explain in detail Langmuir Adsorption isotherms.	**05**
	(c)	Difference between (i) Adsorption and Absorption (ii) Physical adsorption and Chemical adsorption.	**05**
Q.2	**(a)**	Define: Thermodynamics. Explain first law of thermodynamics.	**06**
	(b)	What is the basic principle of Joule –Thomson effect.	**05**
	(c)	Distinguish between (i) Reversible and irreversible process (ii) Isothermal and adiabatic process	**05**
Q.3	**(a)**	Define: (i) Refractive index (ii) Parachor (iii) Specific rotation (iv) Optical activity	**06**
	(b)	Define: Viscosity and fluidity. What are its units? Explain determination of coefficient of viscosity for a liquid using Ostwald's viscometer.	**05**
	(c)	Define: surface tension. What are its units? Explain drop weight method for the determination of the surface tension.	**05**
Q.4	**(a)**	Define: Molarity and Normality. Explain state and limitation of Henry's law.	**06**
	(b)	Define: Colligative property. Describe in detailed lowering of the Vapour pressure.	**05**
	(c)	Define: Depression of freezing point. Explain Rast's camphor method.	**05**
Q.5	**(a)**	Define: Order of reaction. Derive integrated rate equation for first order.	**06**
	(b)	What is catalysis? Write a note on homogeneous and heterogeneous catalyst.	**05**
	(c)	What are the characteristic of catalytic reaction?	**05**
Q. 6	**(a)**	Define: photochemistry. Explain Lambert – Beer law.	**06**
	(b)	Write a note on Jablonski diagram.	**05**
	(c)	Explain the laws of photochemistry.	**05**
Q.7	**(a)**	Define: Fluorescence, Phosphorescence and Chemiluminescence.	**06**
	(b)	State and explain Raoult's law.	**05**
	(c)	Write a short note on 'Elevation in boiling point'.	**05**

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