Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharmacy Sem-III Examination December 2009

Subject code: 230004

Subject Name: Pharmaceutical Analysis – I

Date: 21 / 12 / 2009 **Time: 12.00 – 3.00 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)**	Enumerate areas of application of acid-base buffers. Derive Henderson-Hasselbach equation for finding pH of buffer solution.	**06**
	(b)	Calculate pH of solution resulting by mixing 50 ml 0.2N NaOH and 50 ml 0.4 N CH_3COOH, pKa of Acetic acid is 4.76.	**05**
	(c)	I. Why is phenolphthalein colorless below pH 8.3 and above pH 13? II. Acetic acid is a leveling solvent as well as differentiating solvent.	**05**
Q.2	**(a)**	What is hydrolysis? Derive equation for finding pH of aqueous solution of salt of weak acid and strong base.	**06**
	(b)	Calculate pH and degree of hydrolysis in 0.1 M Ammonium chloride solution. Kb is 1.8×10^{-5}.	**05**
	(c)	Write note on composition and standardization of Karl Fischer Reagent? Give reaction involved in the Karl Fischer Reagent.	**05**
Q.3	**(a)**	Write a note on estimation of Nitrogen in organic compounds by Kjeldhal method.	**06**
	(b)	25ml of 0.1M Acetic acid is titrated with 0.1N NaOH. Calculate the pH of the solution when volume of NaOH is added. (Ka is 1.82×10^{-5}) I. 0.0 ML II. 5 ML III. 25 ML IV. 30 ML	**05**
	(c)	I. Write a short note on ionic product of water. II. Explain the term: Precision, Accuracy and LOD.	**05**
Q.4	**(a)**	Explain theroy of multiple solvent extrations.	**06**
	(b)	A 20 aliquot of 0.4% w/v aqueous solution of acetanilide was extracted with (I) 30 ml ether (II) three times with 40 ml portion of ether. The ether/water partition co-efficient for acetanilide is 3.0. Calculate total amount of drug extracted in each case?	**05**
	(c)	I. How the pH will affect the extractability of drugs. II. What is difference between QA and QC?	**05**

Q.5	**(a)**	Write a note on Diazotization nitrite titration.	**06**
	(b)	Write a note on Iodometric titration.	**05**
	(c)	I. Equivalent weight of $KMnO_4$ changes with the media. II. Define the solvent used in non aqueous titration.	**05**
Q. 6	**(a)**	Types of complexometric titrations. Masking and damasking of complexometric titration.	**06**
	(b)	Explain importance of von-Weimar ratio, co-precipitation and post-precipitation in gravimetric method of estimation.	**05**
	(c)	pM Indicator	**05**
Q.7	**(a)**	Explain the term solubility product constant. Discuss applications of solubility product principle in analysis.	**06**
	(b)	Write a note on the determination of halogen by Volhards' method.	**05**
	(c)	Classify sources of analytical errors. How can they be minimized.	**05**

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