

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 CH₃COOH, pK_a of Acetic acid is 4.76. 05
- (c) I. Why is phenolphthalein colorless below pH 8.3 and above pH 13? 05
- II. Acetic acid is a leveling solvent as well as differentiating solvent.
- 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. K_b is 1.8 X 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. (K_a is 1.82 x 10⁻⁵) 05
- I. 0.0 ML
- II. 5 ML
- III. 25 ML
- IV. 30 ML
- (c) I. Write a short note on ionic product of water. 05
- II. Explain the term: Precision, Accuracy and LOD.
- Q.4 (a) Explain theory of multiple solvent extractions. 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. 05
- II. What is difference between QA and QC?

- 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. **05**
II. Define the solvent used in non aqueous titration.
- 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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