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**B. Pharmacy 3rd Semester Examination**

**Pharmaceutical Analysis-I (N.S.)**

**BP-231**

**Time : 3 Hours**

**Max. Marks : 70**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

1. Attempt any two of the following:

- (a) (i) Describe Law of mass action in detail.
- (ii) Calculate the pH of buffer solution prepared by dissolving 242.2 mg of tris (hydroxyl methyl) amino methane in 10.0 ml of 0.170 M HCl and diluting to 100 ml with water. The molecular weight of solute is 121.1 and the pKa is 8.08 for the conjugated acid.
- (b) What is buffer solution and explain about the buffer mixture of a weak acid and weak base and its salts.
- (c) (i) Explain in brief about the fundamentals of volumetric analysis.
- (ii) Write the importance of quality control of drugs.  
**(2×10=20)**

2. Attempt any eight of the following:

- (a) Describe the different types of errors and write briefly about minimization of errors.
- (b) Write a short note on ionic product of water.

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- (c) Explain theories of acid-base indicators.
- (d) Enlist different types of redox titrations. Describe iodine methods in detail.
- (e) Write note on Fajan's method of halogen determination.
- (f) Write detail note on Volhard method of argentometric titration.
- (g) What is gravimetric analysis? Enlist the steps involved in gravimetric analysis. Discuss in detail the precipitation techniques employed in gravimetry.
- (h) Define hydrolysis and derive pH equation for hydrolysis of salt prepared from weak acid and weak base.
- (i) Describe common ion effect. State the advantages of common ion effect in pharmaceutical analysis.
- (j) What will be pH and percentage hydrolysis of 0.2M KCN solution.  $K_a = 4.9 \times 10^{-10}$ . **(8×5=40)**

3. Attempt the following:

- (a) Write Primary standard compounds of following:  $KMnO_4$ ,  $Na_2S_2O_3$ .
- (b) Justify: Nitrobenzene is added in the assay of ammonium chloride by Volhard's method.
- (c) Justify: Mohr's method is carried out at neutral pH.
- (d) Define the term Stoichiometric end point.
- (e) Justify the following sentence: KI is added in the preparation of Iodine solution. **(5×2=10)**