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1.1.1

PHARMACEUTICAL ANALYSIS-I

(B.Pharmacy, 1st Semester, 2123)

Time : 3 Hours

Maximum Marks : 80

Note :- This paper consists of Three Sections. Section A is compulsory. Attempt any *Four* questions from Section B and *Three* from Section C. Log tables and *t*-tables may be used.

Section-A Marks : 2 Each

1. (a) Distinguish between additive and proportional errors.
- (b) Calculate and express the result to correct number of significant figures :
 $18.905 + 302.09 + 0.0908$
 $550.0 \times 0.005 \times 1.0078$.
- (c) - What is the relevance of student's *t*-test in pharmaceutical analysis ?

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- (d) Give two examples each of bronsted acid and bronsted base.
- (e) What is pH of a solution having hydronium ion concentration of 1.2 mol/l ?
- (f) Calculate the pH of a solution of 0.2 M ammonium chloride. pK_b for ammonium hydroxide is 4.7 .
- (g) What are ink indicators? Where are these used?
- (h) Describe Nernst equation.
- (i) Why is freshly prepared potassium permanganate solution heated to boiling?
- (j) What is the difference between iodometry and iodimetry?
- (k) Name *four* oxidizing agents which require acidic pH for their titrations.
- (l) Define Salt Effect. How does it affect solubility of a sparingly soluble electrolyte?
- (m) What are adsorption indicators? Where are these used?

- (n) Define Colloidal State. How are colloids classified?
- (o) Why are silver chloride precipitates washed with dilute nitric acid and not water?

Section-B

Marks : 5 Each

2. Explain the Bronsted Lowry concept of acids and bases.
3. What is the pH of a solution of 0.1 N NaOH if it is 1.31% ionized?
4. Solubility product of magnesium hydroxide is $3.4 \times 10^{-11} \text{ mol}^3/\text{l}^3$. Calculate its solubility in g/l.
5. Titration of 1 g of a sodium bicarbonate sample against 0.1 N HCl consumes 25 ml of the titrant. What is the percentage purity of the sample?
6. What salient points distinguish between Mohr's and Volhard's method?
7. Explain the gravimetric determination of barium.

Section-C Marks : 10 Each

8. Discuss various methods for minimization of errors in pharmaceutical analysis.
9. Contents of diazepam in 10 tablets (in mg) are as under. Calculate the mean, standard deviation and coefficient of variation for this data set :
4.5; 4.6; 5.0; 4.6; 4.5; 4.0; 4.1; 4.3; 4.0; 4.9
10. Calculate hydrolysis constant, degree of hydrolysis and pH of a solution of potassium acetate (0.001 M). K_a for acetic acid is 1.75×10^{-5} M.
11. Explain various types of titration curves in neutralization titrations.