Pharmaceutical Analysis
(B.Pharmacy 1st Semester)

Time: 3 Hours

Note: This paper consists of Three Sections. Section A is compulsory.Choose any one question from Section B and any Three questions from Section C.

Section A

(a) How do you define an isomer?

(b) Define the terms: trade formulation, active ingredient and minor constituent.

(c) Calculate and express the following to two significant figures:
   \[ 120 \times 0.99 \times 0.0209 \]
   \[ 950.0 \times 0.005 \times 1.498 \]

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(d) Give the conjugate bases for the following:
HCl, Water.

(e) Explain the concept of activity and activity coefficient.

(f) What is $K_a$ and what is its relation with acid strength?

What is pH in a solution having hydronium ion concentration of 10^-4 M?

(g) Calculate the pH of 0.05 M sodium benzoate solution. pH for benzoic acid is 4.2.

(h) What is a four-time the interval of an indicator?
2. Arrange the following in the order of their oxidizing power: KMnO₄, K₂Cr₂O₇, iodine and ceric sulphate

3. Calculate the solubility of silver chloride in 0.01 M NaCl solution. Kₛ for AgCl is 1.8 x 10⁻¹⁰.

4. What is the use of digestion of precipitates in gravimetry?

Section B

Marks: 5

20 determinations were made for weight of samples. Mean result was obtained. Calculate whether result is significant for 5% error. Given actual yields of 25.0 and 25.39 g. Calculate the standard error.
Section C: Analysis of data

What is the role of solubility products in determining the endpoint in Mohr's method of chloride estimation? How does this method differ from volumetric method?

Discuss various types of errors in pharmaceutical analysis.

Weigh 10 tablets in a weight variation test and determine the mean, standard deviation, and coefficient of variation for the data:

200.9, 198.5, 205.5, 195.0, 210.2, 190.5, 192.0, 196.0, 193.5, 202.7.

Determine an expression for hydrolysis constant and prepare a solution of a salt of weak acid and weak base.

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