13795

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – B.Pharm-2022/B.Pharm-2023/B.Pharm-2024/B.Pharm-2025
Course Name – Pharmaceutical Analysis I
Course Code - BP102T
(Semester I)

Full Marks : 75 **Time : 3:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 20=20

1. *Choose the correct alternative from the following :*

(i) Identify the correct option from the following- molarity of a solution containing 80g of NaOH in 1000 ml solution is _____.

a) 2 M b) 1 M
c) 0.5 M d) 0.3 M

(ii) Identify the correct option, which one of the following is a secondary standard?

a) Sodium hydroxide b) As2O3
c) Oxalic acid d) KHP

(iii) Identify the correct option from the following, the molality of a solution containing 98 g of H2SO4 in 1000 ml solution is _____.

a) 1 M b) 2 M
c) 0.05 M d) 0.06 M

(iv) Select the correct option, Gutzeit apparatus is used in the limit test of _____.

a) Lead b) Sulphate
c) Iron d) Arsenic

(v) Select the correct option, Lead acetate cotton is used in the limit test of _____.

a) Lead b) Arsenic
c) Chloride d) Iron

(vi) Choose the correct option-.....number of significant figures are there in 1.996.

a) Four b) Five
c) Two d) Six

(vii) Which one is used in the limit test of arsenic?

a) Lead acetate b) Sodium chloride
c) Silver nitrate d) Dithizone

(viii) Identify the correct one, The normality of a solution containing 98 g of H2SO4 in 1000 ml solution is

a) 1 b) 2
c) 0.05 d) 0.06

(ix) Select the correct option, determination of humidity is a kind of _____.

a) acid base titration b) non aqueous titration
c) complexometric titration d) Redox titration

(x) Select the correct one ,The titrant used in Permagnatometry is

a) KMnO4 b) KBr
c) I2 d) K2Cr2O7

(xi) Choose the correct one, which amphiprotic solvent is very commonly used in non-aqueous titration?

a) Acetic acid b) Water
c) Formic acid d) Butanoic acid

(xii) Select the correct option, the commonly used acid in non aqueous titration is _____.

a) Acetic acid b) Perchloric acid
c) Formic acid d) None of these

(xiii) Choose the correct option, Which reagent is commonly used as a titrant in redox titrations to determine the concentration of reducing agents?

a) Potassium permanganate (KMnO4) b) Sodium hydroxide (NaOH)
c) Acetic acid (CH3COOH) d) Sulfuric acid (H2SO4)

(xiv) Choose the correct option,Gravimetric analysis is often used for the determination of which of the following types of impurities in pharmaceuticals?

a) Organic impurities b) Color impurities
c) Inorganic impurities d) All of these

(xv) Choose the correct option, In conductometric measurements, what property of a solution is typically related to the concentration of ions present?

a) Refractive index b) Viscosity
c) Conductance d) Mass

(xvi) Choose the correct option, Which of the following is an application of conductometry in pharmaceutical analysis?

a) Determining the acidity of a solution b) Measuring the basicity of a sample
c) Analyzing the ionic content of a solution d) none of these

(xvii) Select the correct option, in potentiometric analysis, what is the term for the electrode that is sensitive to the activity of the ion being measured?

a) Indicator electrode b) Reference electrode
c) Secondary electrode d) Voltammetric electrode

(xviii) Select the correct option, In potentiometric titrations, the endpoint is determined by:

a) A change in color. b) A change in temperature.
c) A change in voltage or potential difference. d) A change in pressure.

(xix) Select the correct option, In a potentiometric measurement, if the concentration of the ion being measured is low, what will happen to the electrode potential?

a) It will remain constant. b) It will decrease.
c) It will increase. d) It will not be affected.

(xx) Choose the correct option, which electrode is commonly used as an indicator electrode in the determination of pH in pharmaceutical solutions?

a) Glass electrode b) Platinum electrode
c) Silver/silver chloride electrode d) Calomel electrode

Group-B

(Short Answer Type Questions) 5 x 7=35

2. Define "concentration" along with breif description of "Different methods for expressing concentrations". (5)

3. Explain the masking and demasking phenomenon in the context of complexometric titration. (5)
4. Describe briefly about the methodology of "preparation and standardization of 0.1 N Potassium Permanganate solution". (5)

5. Describe precision, accuracy and significant figures. (5)
6. Describe about the Arrhenious and Lewis theory of acids and bases. (5)
7. Explain briefly the applications of "complexometric titration". (5)

OR

Illustrate briefly about Dichrometry. (5)
8. Explain precipitation titration with the explanation of criterion of precipitation of an electrolyte? (5)

OR

Explain in details about the assay of ferrous sulphate according to ceriometry. (5)

Group-C

(Long Answer Type Questions) 10 x 2=20

9. Discuss the principle, balanced chemical equation, general calculations for the standardization of Na2SO3 and discuss about the application of Na2SO3 in estimation of CuSO4. (10)
10. Explain the equation for equilibrium constant with the help of the law of mass action and find the pH of a buffer solution containing 0.25 M of HCOOH and 0.1M of HCOONa. Ka for Formic acid is 1.8 x 10-4. (10)

OR

Explain the neutralization curve of strong acid vs. weak base and Explain the preparation and standardization of 0.1N acetous perchloric acid. (10)

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