F. Y. B. Pharm
09/04/25
Sem - I

Duration: 3 Hrs **Total marks: 75**

N.B.: 1. All questions are compulsory
2. Figures to right indicate full marks

Q. I Choose appropriate option for the following multiple choice-based questions. **20**

1 The number of moles of solute dissolved per 1000 g of solvent is known as _____.
   a. Molarity
   b. Molality
   c. Normality
   d. Mole fraction

2 Mechanical loss of materials during weighing is the example of ________.
   a. Instrumental error
   b. Method error
   c. Indeterminate error
   d. Personal error

3 The following are examples of primary standard, except ______.
   a. Potassium hydrogen pthalate
   b. Sodium oxalate
   c. Anhydrous sodium carbonate
   d. Sodium hydroxide

4 What is the principle of cerimetry?
   a. Oxidation of cerium (IV) ions to cerium (III) ions
   b. Reduction of cerium (IV) ions to cerium (III) ions
   c. Oxidation of cerium (III) ions to cerium (IV) ions
   d. Reduction of cerium (III) ions to cerium (IV) ions

5 In an acid-base titration, which of the following indicators is commonly used to detect the endpoint when titrating a weak acid with a strong base?
   a. Methyl red
   b. Phenolphthalein
   c. Bromophenol blue
   d. Methyl yellow

6 Which electrode is described as mercury electrode covered by a layer of mercurous chloride in contact with a saturated potassium chloride solution.
   a. Standard hydrogen electrode
   b. Silver/silver chloride electrode
   c. Calomel electrode
   d. Glass electrode

7 Protogenic solvents are __________ in nature.

a. Acidic
b. Alkaline
c. Neutral
d. Amphoteric

8 What is the primary purpose of iodimetry titration?

a. To determine the concentration of iodine molecules
b. To determine the concentration of iodine ions
c. To determine the concentration of oxidizing agent
d. To determine the concentration of reducing agent

9 How many significant figures are in the measurement 0.0855 L?

a. One
b. Two
c. Three
d. Four

10 When 20 ml of acid is neutralised by 16 ml of 0.5 N alkali, the acid concentration is______

a. 0.1 N
b. 0.2 N
c. 0.3 N
d. 0.4 N

11 A substance will precipitate out if the product of its ionic concentrations _______ the solubility product.

a. Is equal to
b. Is less than
c. Is more than
d. Is twice the

12 ______ is an indirect argentometric titration method.

a. Mohr's method
b. Fajan's Method
c. Volhard method
d. Gay-Lussac stas method

13 Polarogram is the plot of __________.

a. Current versus voltage
b. Current versus volume
c. Concentration versus voltage
d. Concentration versus current

14 EDTA is an example of ______ ligand
   a. Unidentate
   b. Bidentate
   c. Quadridentate
   d. Hexadentate

15 Select the incorrect statement for non-aqueous solvents.
   a. Aprotic solvents do not exert a levelling effect
   b. Strong bases are levelling solvents for bases
   c. Weak bases are differentiating solvents for bases
   d. Amphiprotic solvents do not exert a levelling effect

16 Auxiliary chelating that forms complex more selectively with the metal than the titrant metal under the condition of titration is known as ____.
   a. Sequestering agent
   b. Complexing agent
   c. Masking agent
   d. Demasking agent

17 Identify the correct combination of titrant and indicator.
   a. Sodium hydroxide & Starch
   b. EDTA & Mordant black II
   c. Silver nitrate & Phenolphthalein
   d. Iodine & Potassium chromate

18 The product of specific conductance and the volume of a solution containing one mole of electrolyte is called______.
   a. Molar conductivity
   b. Specific conductivity
   c. Conductivity
   d. Specificity

19 According to resonance theory, the benzenoid form of phenolphthalein is ____.
   a. Orange
   b. Pink
   c. Yellow
   d. Colourless

20 The concordance between a series of measurements of the same quantity is ________.
   a. Accuracy
   b. Precision
   c. Stoichiometric end point
   d. Standardization

Q. II Answer any two questions. (Any 2) **20**

1 Explain the neutralization curve for titration of weak acid and strong base. Discuss in brief solvents used in non-aqueous titration and explain the levelling & differentiating effect of solvents. **10**

2 Explain following terms: Normality, Accuracy, Significant figures, Primary Standard. Define and classify error with suitable example. Give the methods for error minimization. **10**

3 What is redox titration? Enlist the indicators used in redox titrations. Give the difference between iodimetry and iodometry. Why is starch added towards the end of the iodometric titrations? **10**

Q. III Answer any seven questions (Any Seven) **35**

1 What is coprecipitation? Discuss the indicators used for determination of end point in precipitation titration. **5**

2 What are the requirements for a substance to be used as Primary standard? **5**

3 Write the Principle and reaction involved in Assay of Calcium gluconate. **5**

4 What are the advantages of Cerium sulphate as a titrant. Discuss the principle involved in ceriometric titrations. **5**

5 What are indictors? Give explanation of the Resonance theory of indicators. **5**

6 Discuss the principle and working of conductometer. **5**

7 Enlist the electroanalytical techniques and explain the construction & working of Standard Hydrogen Electrode **5**

8 Discuss the types of complexometric titrations. **5**

9 State the Ilkovic equation. Explain the terms half wave potential, diffusion current, limiting current with the help of Polarographic C-V curve. **5**

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