Time: 3 Hours Max.Marks: 70

Note: Answer all questions. All questions carry equal marks.

1.(a) i) Define primary standard and secondary standard with examples. Write the ideal properties of a primary standard substance. (6)
ii) Define the following terms: (4x2=8
(A) Standard solution (B) End Point (C) Equivalence Point (D) Indicator

OR

(b) i) What is meant by calibration? How do you calibrate burette? (6)
ii) Define error. Classify and explain different types of errors. (8)

2.(a) i) Write notes on different theories of acids and bases. (8)
ii) Write short notes on: (2x3=6
(A) Solubility product (B) Law of mass action

OR

(b) i) How do you prepare and standardize 0.1 N HCl. (4)
ii) Write a note on role of buffers in pharmacy. (6)
iii) The solubility product of silver chloride is 2.8×10^{-10} mol^2/lit^2. Calculate its solubility in g/L. (4)

3.(a) i) Write the methods of balancing of oxidation reduction reactions with examples. (6)
ii) Explain the steps involved in gravimetric analysis. (8)

OR

(b) i) How do you prepare and standardize 0.1 N sodiumthiosulphate solution? (4)
ii) Write a note on redoc indicators. (5)
iii) Write a note on precipitation and coagulation used in gravimetric analysis. (5)

4.(a) i) Write a note on argentometric titrations. (5)
ii) Write the principle involved in non-aqueous titrations and mention its applications. (5)
iii) How do you prepare and standardize 0.01 M EDTA solution? (4)

OR

(b) i) Write the principle involved in complexometric titrations with suitable example. Write a note on indicators used in complexometric titrations. (7)
ii) How do you prepare and standardize 0.1 N $HClO_4$. (4)
iii) Write a note on adsorbents used in gas analysis. (3)

5.(a) i) Calculate the number of moles of sodium hydroxide in 200 ml of 1 M sodium hydroxide solution. (4)
ii) Define and explain the terms
A) Emperical formula (B) Molecular formula
C) Theoretical yield (D) Percentage yield (4x2½) = (10)

OR

(b) i) Describe the mole concept and avogadro's number. (6)
ii) Calculate the percentagte composition of elements in $Na_2S_2O_3$. (4)
iii) Write the mass balance equation for the following. (2x2) = (4)

1. $NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$
2. $C_6H_{12}O_6 \rightarrow C_2H_5OH + CO_2$

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