III. Short answers (Answer seven out of nine questions) **5x7=35**

1. Explain the different methods of expressing concentration. 5
2. Define primary standard with examples. Also mention the characteristics of primary standards. 2+3
3. Explain the principle for the limit test of arsenic and describe the related reactions and mention the role of various reagents used. 2+2+1
4. Describe the preparation and standardization of 0.1 N perchloric acid solution. 5
5. Discuss the principle of diazotization titration. Also mention the preparation and standardization of 0.1 M sodium nitrite solution. 2+3
6. Describe Volhard's method of precipitation titration. 5
7. Explain the construction of Ag-AgCl electrode with neat and labelled diagram. Also mention its advantages and limitations. 3+2
8. Describe the reaction between strong acid and weak base using conductometric titrations. 5
9. Differentiate between iodimetry and iodometry. 5

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UG Odd Semester (CBCS) Examination, 2022
held in March 2023

PHARMACEUTICAL SCIENCES

(1st Semester)

Course No: BP 102T

Pharmaceutical Analysis – I (Theory)

Full Marks: 75

Time: 3 Hours

The figures in the margin indicate full marks for the questions

I(A). Multiple choice questions **1x 10=10**

1. Ignition of precipitates at incorrect temperature is an example of
   (a) Instrumental error (b) Additive error
   (c) Personal error (d) Proportional error
2. The term used for the container that is impervious to air or any other gas under normal conditions of handling, shipment, storage and distribution is
   (a) Hermetically sealed container
   (b) Tamper-evident container
   (c) Sealed container
   (d) Tightly-closed container
3. Which of the following indicator gives yellowish green color in acidic medium?
   (a) Naphthol red (b) Crystal violet
   (c) Oracet blue B (d) Quinaldine red

4. Example of aprotic solvent is
   (a) Chloroform (b) Acetone
   (c) HCl (d) None of the above
5. Method used for the titration of insoluble diazonium salts
   (a) Direct Method (b) Indirect Method
   (c) Alkalimetric Method (d) Gravimetric Method
6. Titration of I2 against thiosulfate is a standard laboratory titration. Which statement is correct?
   (a) Solutions of I2 are prepared in aqueous KI because I2 is insoluble in water
   (b) I2 is oxidized during the titration
   (c) [S2O3]2– is reduced during the titration
   (d) No indicator is usually used in this redox titration
7. Which of the following is better oxidizing agent?
   (a) Potassium dichromate
   (b) Potassium permanganate
   (c) Ceric ammonium sulphate
   (d) All of the above
8. Supporting electrolyte is used in polarography to suppress
   (a) Diffusion current (b) Migration current
   (c) Convection current (d) Limiting current
9. The interaction of thiocyanate and silver chloride can be prevented with
   (a) Nitrotoluene (b) Dibutyl phthalate
   (c) Potassium nitrate (d) All of the above

10. What happens if the indicator is a weak base?
    (a) Its ionization is much low in acids
    (b) Its ionization is high in acid
    (c) Its ionization is high in alkali
    (d) None of the above

I(B). Objective type (Answer the following in brief) **2x5=10**

1. Define significant figures and precision.
2. Mention the various storage conditions defined with respect to the temperatures.
3. What are residual solvents? Mention its classification with examples.
4. Why Mohr's method cannot be used in highly acid and alkaline solutions?
5. Why use of HF is not advised in cerimetry?

II. Long answers (Answer two out of three questions) **10x2=20**

1. What is acid-base indicator? Mention its properties and describe the theories of acid-base indicators. 1+2+7
2. Write a note on masking and demasking agents. Describe the estimation of magnesium sulphate using complexometric titrations. 5+5
3. Discuss the different types of polarographic currents. Describe the factors affecting diffusion current. Also explain Ilkovic equation. 4+4+2