

Chemistry (P.G.)

[CBCS]

M.Sc. Second Semester End Examination-2024

(Regular & Supplementary Paper)

PAPER- CEM-296

[Practical]

*Full Marks: 50*

*Time: 06 Hrs*

*The figures in the right-hand margin indicate marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

**Q.1. Perform any one experiment from the following experiments through lottery. 35.**

1. Kinetics of Inversion of Cane-sugar by Polarimeter
2. Determination of concentration of Glucose-fructose in a mixture using polarimeter
3. Conductometric determination of concentrations of KCl, HCl and  $\text{NH}_4\text{Cl}$  in a mixture.
4. Verify the Onsagar equation using KCl,  $\text{K}_2\text{SO}_4$  and  $\text{BaCl}_2$  as electrolytes and determine their  $\Lambda^0$  values.
5. Determination of CMC of a surfactant in aqueous solution by conductometric method.
6. Potentiometric titration of halide mixture (Chloride, Bromide and Iodide).

7. Determine the  $E^0$  value of  $\text{Ag}^+/\text{Ag}$  electrode and activity coefficients of different aqueous  $\text{AgNO}_3$  solutions potentiometrically.
8. Determine the standard potential of  $^*\text{Fe}(\text{CN})_6^{+3}/^*\text{Fe}(\text{CN})_6^{+4}$  electrode by potentiometer.
9. Determine the dissociation constants ( $K_1$ ,  $K_2$ , and  $K_3$ ) of  $\text{H}_3\text{PO}_4$  by pH meter.
10. Study the kinetics of Iodination of acetone spectrophotometrically.
11. Determination of composition of complexes (Ferric-salicylate complex/Ferrous-orthophenanthroline complex) by Job's method.
12. Determine the rate constant and the order of the reaction of  $\text{KBrO}_3$  &  $\text{KI}$  in acid medium.
13. Determine the order and rate constant of the reaction between  $\text{K}_2\text{S}_2\text{O}_8$  &  $\text{KI}$  and study the influence of ionic strength on the rate constant.
14. Study of the kinetic of alkaline hydrolysis of crystal violet. Determine the order with respect to alkali and salt effect on the system.

Q. 2. Sessional Work:	5
Q. 3. Viva Voce:	10

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