

2025

M.Sc. 1st Semester Examination

CHEMISTRY

Paper : CEMC405X9

(Physical Chemistry)

(Practical)

Full Marks : 25

Time : Two Hours

The figures in the margin indicate full marks.

**A. Perform any one of the following experiments
(for each student) settled by lottery : 15**

1. Conductometric determination of concentrations of KCl, HCl and NH_4Cl in a mixture.
2. Verification of Onsager equation using KCl, K_2SO_4 and BaCl_2 as electrolytes and determine their Λ_0 values.

(2)

3. Determination of CMC of a surfactant in aqueous solution by conductometric method.

4. Potentiometric titration of halide mixture (Chloride, Bromide and Iodide).

5. Determination of the E^0 value of Ag^+/Ag electrode and activity coefficients of different aqueous AgNO_3 solutions potentiometrically.

6. Determination of the standard potential of $^*\text{Fe}(\text{CN})_6^{3-}$ $^*\text{Fe}(\text{CN})_6^{4-}$ electrode by potentiometer.

7. Determine the dissociation constants (K_1 , K_2 , and K_3) of H_3PO_4 by pH meter.

(3)

8. Study the kinetics of Iodination of acetone spectrophotometrically.

9. Determination of composition of complexes (Ferric-salicylate complex/Ferrous-orthophenanthroline complex) by Job's method.

10. Determine the rate constant and the order of the reaction of KBrO_3 and KI in acid medium.

B. Sessional Work and laboratory Notebook.	5
C. Viva-voce.	5
