Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY
Winter Examination-2015

Subject Name: Analytical Chemistry-I

Subject Code: 4SC05CHC4 **Branch: B.Sc. (Chemistry)**

Semester: 5 Date: 09/12/2015 Time: 02.30 To 05.30 Marks: 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**

a) Define: Precision (1)
b) Define: Accuracy (1)
c) Define: Kohlrausch law (1)
d) Define: Specific conductance (1)
e) Define: Coefficient of Variance (C.V.) (1)
f) Give the differences between repeatability and reproductivity. (1)
g) Define: Relative error (1)
h) Define: Saturated solution (1)
i) Define: Grothus Draper law (1)
j) Calculate the molality of the solution prepared by dissolving 264 gms $(NH_4)_2SO_4$ in 5 kgm water. (1)
k) Define: Molarity (M) (1)
l) Calculate the mole fraction of NaOH in the solution containing 2 moles of H_2O & 3 moles of NaOH. (1)
m) Define: Transmittance (1)
n) Define: Argentometric titration (1)

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

(1) Explain any five methods for minimization of errors. **(5)**
(2) The amount of element A in AB compound in different experiments obtained as 48.32 %, 48.36 %, 48.23%, 48.11% and 48.38%. Then calculate median value, median deviation, mean value, relative average deviation and standard deviation. **(5)**
(3) Explain any two determinate errors. **(4)**

Q-3 **Attempt all questions** **(14)**

(1) Discuss the methods for the separation of Cl^-, Br^- & I^-. **(5)**

(2) Define Lambert's law. Derive Lambert-Beer's law equation. **(5)**

(3) There is lack of absorbance by product and reagent.Explain with diagram. **(4)**

Q-4 **Attempt all questions** **(14)**

(1) Explain neutralization titration curve of strong acid & strong base with diagram. **(5)**

(2) Discuss the methods for separation of CO_3^{-2}, SO_3^{-2}, & S^{-2}. **(5)**

(3) When does a solution deviate from Lambert Beer law?Discuss. **(4)**

Q-5 **Attempt all questions** **(14)**

(1) Discuss various types of redox indicator. **(5)**

(2) Explain Mohr's method for Argentometric titration. **(5)**

(3) Define primary standard. Give its characteristics. **(4)**

Q-6 **Attempt all questions** **(14)**

(1) Explain Iodimetry & Iodometry estimation. **(5)**

(2) Explain Fajan's method for Argentometric titration. **(5)**

(3) Give merits and demerits of starch indicator. **(4)**

Q-7 **Attempt all questions** **(14)**

(1) Describe the method to determine the degree of hydrolysis and hydrolysis constant of salt by conductometry. **(5)**

(2) Discuss the nature of acid-base conductometric curve for the titration of strong acid with strong base. **(5)**

(3) Give the applications of conductance measurements. **(4)**

Q-8 **Attempt all questions** **(14)**

(1) Discuss the shape of the precipitation titration curve of $BaCl_2$ by Na_2SO_4 **(5)**

(2) Each of the following sets of data has what appears to be an outlying result. Apply the Q test (90% confidence) to determine whether this value should be retained or rejected. (Q_{tab} for A & B = 0.76, Q_{tab} for C = 0.94). **(5)**

A	B	C
75.97	14.64	31.42
76.36	14.41	31.40
76.04	14.46	31.04
76.13	14.14	

(3) Give the differences between end point and equivalence point. **(4)**