2021
B.A./B.Sc. Semester I Honours Examination
University of Calcutta
CHEMISTRY
Paper CC2
(PRACTICAL)
F.M. 30

FAKIR CHAND COLLEGE CENTRE (551)

[Use A4 pages and black ink only for writing answers. Write Roll number and Registration number at the top and page number at the bottom of each page. Images of answer script and admit card must be in a single pdf file.]

PHYSICAL CHEMISTRY (CC-2A) (Marks : 20)

1. a) "**Determination of solubility of the supplied (1:1) sparingly soluble salt in water and in an electrolyte solution"**

Write down the theory for the above experiment covering the following points:

i) Define the solubility and activity solubility product of a solute. [2+2]

ii) Write down the effect of temperature on the solubility of a solute in a solvent. [1]

b) The following data were obtained when **25 ml** of the filtrates of two bottles containing, ~ 2 gm of (1:1) sparingly soluble salt in 100ml water (bottle 1) and ~ 2 gm of the same sparingly soluble salt in a 100 ml electrolyte solution (bottle 2) were titrated against a **1.0126 (N/20) NaOH** solution at **26^0C** temperature.

Burette readings for Bottle 1 (water) (ml): **21.1, 21.2, 21.1**

Burette readings for Bottle 2 (electrolyte) (ml): **24.9, 25.1, 25.0**

Represent the data in proper tabular forms. [2+2]

c) Show the necessary calculations for each bottle. [2+2]

d) Determine the solubility of the supplied (1:1) sparingly soluble salt in two bottles in "g-mol/lit" and also in "g/lit". (Given that **M.W. of Salt = 188**). [2+1]×2

e) Write down the conclusion that you can draw regarding the nature of the electrolyte solution. [1]

ORGANIC CHEMISTRY (CC-2B) (Marks : 10)

2. Draw a neat diagram of boiling point apparatus and properly label its different components.

(a) Diagram [2]

(b) Proper labelling [2]

3. Suggest in each case which among the following pairs would have a higher boiling point and why?

(a) n-pentane and *iso*-pentane (b) 1-butanol and *t*-butanol [3+3]