2019

B.Sc.

3rd Semester Examination

CHEMISTRY (Honours)

Paper - C 5-P

(Practical)

Full Marks : 20　　　　　　　　　Time : 3 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.

1. Perform one experiment from the list of experiments allotted through a single draw lottery.　15×1=15

   (a) Determine partition coefficient for the distribution of I_2 between water and the supplied organic solvent (perform the experiment in one set)

   (b) Determine the exact concentration of supplied solution (approx $\frac{N}{10}$) of a dibasic acid by titrating the solution conductometrically against standard NaOH solution.

[Turn Over]

(c) Determine the exact concentration of supplied solution (approx $\frac{N}{10}$) of a strong monobasic acid by titrating the solution conductometrically against standard NaOH solution.

(d) Determine the exact concentration of supplied solution approx $\frac{N}{10}$) of a weak monobasic acid by titrating the solution conductometrically against standard NaOH solution.

(e) Determine the rate constant of saponification reaction conductometrically.

(f) Determine the ionization constant of a weak monoprotic acid using Ostwald dilution law.

(g) Prepare 3% and 6% solution from supplied 9% solution of A and determined their η with respect to water. Hence, plot η vs. concentration w.r. to water.

(In each experiment, marks are distributed among the following : Theory, Representation of data in tabular form, calculation, graph plotting (if necessary) and Result)

2. Laboratory Note Book.   2

3. Viva-voce.   3

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Instruction to the Examiners

Examiners are requested to —

1. Set at least five experiment in the centre and dispense one experiment to each examinee through a single draw lottery.

2. Prepare and supply requisite volume of the following solution with proper lebel.

[Turn Over]

Experiment	Solution to be supplied
1. a	Saturated solution of I_2 in CCl_4 and pure CCl_4 as organic solvent.
1. b	$\sim \frac{N}{2}$ NaOH soln and $\sim \frac{N}{10}$ oxalic acid as unknown solution.
1. c	$\sim \frac{N}{2}$ NaOH solution and $\frac{N}{10}$ HCl solution as unknown.
1. d	$\sim \frac{N}{2} NaOH$ solution and $\frac{N}{10} CH_3COOH$ as unknown solution.
1. e	$\sim \frac{N}{10} NaOH$ Solution
1. f	$\sim \frac{N}{10}$ Acetic acid solution
1. g	9% sugar solution

3. Provide the value of density of water, coefficient of viscosity of water, density of supplied ester and cell constant of conductometer.

4. Digital balance must be supplied.

5. Calibrate the conductometer.

6. Allow examinees to do their experiment only after completion of theory write up. Put signature at the end of theory written by the candidate.

7. Check and sign important data.

8. Awarding Marks :

(a) Theory - 03

(b) Representation of data in tabular form and calculation - 07

(c) Graph plotting - 03 (Except expt. 1a)

(d) Result - 02 (for experiments with graph)

   - 05 (for experiment without graph)

***Marks on result should be awarded on the basis of results that examiners will get from their experiments.

If the result of the examiners and that reported by a candidate differ by x%, then award marks as per following table

x	Experiment 1.a	Experiment 1.b to 1.g
$0\% \leq x \leq 5\%$	5	2
$5\% < x \leq 8\%$	3	1½
$8\% < x \leq 10\%$	2	1
$10\% < x \leq 11\%$	1	½
$x > 11\%$	0	0

[Turn Over]

> For experiment 1. h —

Straight line passing through four points   - 02

Straight line passing through three points   - 1½

Straight line passing through two points   - ½

Straight line passing through one point   - 0

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