14CHU17

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(Fifth Semester)

Branch- **CHEMISTRY**

PHYSICAL CHEMISTRY -1

Time : Three Hours Maximum ; 75 Marks

SECTION-A (20 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10x2 = 20)

1 State Ohm's Law.
2 Define Transport number.
3 Define Equivalent Conductance.
4 What is meant by degree of dissociation?
5 State Lewis concept of Acids and Bases.
6 Define P^H of a solution.
7 Define Single Electrode Potential.
8 What is redox titration? Give an example.
9 What is meant by Electroplating?
10 Define Corrosion.

SECTION - B *(25* Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

11 a Give a brief note on applications of conductivity measurements.
OR
b The molar conductance of C^COONa, HC1 and NaCl at infinite dilutions are 91.0 x $10'^4$, 426.16 x 10^{-4} and 126.45 x $10'^4$ sm'^1 respectively at 25°C. Calculate the molar conductance for CH3COOH.

12 a Derive Ostwald's dilution law for weak electrolytes.
OR
b Write a short note on Debye-Falkenhagen effect and Wein effect.

13 a Write a short note on the following: (i) P^H Scale (ii) Common ion effect.
OR
b What is Salt Hydrolysis? Explain the salt hydrolysis of salt of weak acid and strong base.

14 a Define concentration cells? Derive an expression for the concentration cell with transference.
OR
b Explain the potentiometric curve of acid-base titrations.

15 a Write a short note on the following: (i) alloy plating (ii) electro forming
OR
b Briefly explain any two coating processes.

SECTION - C (30 Marks!
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 1 0 = 30)

16 Explain the moving boundary method for the determination of transport number.

17 What are conductometric titrations? Draw and explain the conductometric titration curves of,
(i) HC1 Vs NaOH (ii) CH3COOH Vs NaOH
(iii) Mixture of HC1 and CH3COOH Vs NaOH.

18 What is Buffer Solution? Explain the mechanism of acid buffer and base buffer solution.

19 Write a detailed note on the applications of emt measurements.