BSc DEGREE EXAMINATION MAY 2018
(Fifth Semester)
Branch – CHEMISTRY
PHYSICAL CHEMISTRY – I

Time : Three Hours   Maximum : 75 Marks

SECTION-A (20 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (10 x 2 = 20)

1   What is Conductance ratio?
2   State the Faraday's law of Electrolysis.
3   What is dissociation constant?
4   Mention the factors influencing degree of dissociation.
5   Write any two applications of Buffer solution.
6   What is p^H scale?
7   Define electrolytic cell.
8   What are acid-base titrations?
9   Give the basic components of electroplating.
10   Illustrate the term corrosion.

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

11   a (i) Describe the mechanism of electrolysis.
       (ii) Explain ionic mobility.
                          OR
     b   State and explain Kohlrausch law.

12   a   Explain Arrhenius theory of electrolytic dissociation and its limitations.
                          OR
     b   Discuss the conductometric titration involving mixture of string and weak
            acids with strong base.

13   a   Write a short notes on: (i) Ionic product of water   (ii) Buffer capacity
                          OR
     b   Calculate the degree of hydrolysis of 0.01M solution of sodium acetate at 25^0C,
            $K_a=1.75 \times 10^{-5}$ and $K_w=1.008 \times 10^{-4}$

14   a   Write a note on: Quinhydrone electrode
                          OR
     b   Distinguish between reversible and irreversible cells.

15   a   Explain the principles of electroplating.
                          OR
     b   Describe the following types of plating   (i) alloy   (ii) electrolysis

SECTION - C (30 Marks)
Answer any THREE Questions
ALL Questions Carry EQUAL Marks (3 x 10 = 30)

16   What is Transport number? How it is determined by moving boundary method?
17 a)   Discuss Debye-Huckel Onsager equation.
   b)   Explain Debye-Falkenhagen effect.
18 a)   Explain briefly about common ion effect with example.
   b)   Write a note on: levelling effect.
19   Discuss the concentration cell with transference and without transference.
20   Discuss in detail the types of coating processes with suitable example.

Z-Z-Z   END