Total No. of Printed Pages: 3

SUBJECT CODE NO: - Y-2012

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. S.Y (Sem-IV)

Examination March / April - 2023

Chemistry Paper-XI (Physical Chemistry-II)

[Time: 1:30 Hours]   [Max. Marks: 50]

Please check whether you have got the right question paper.

N. B   1) Attempt all questions.

2) Figures to the right indicate full marks.

3) Use of non-programmable calculator is allowed.

Q1   a) What is phase rule? Explain the terms involved in it with suitable example.   10

b) Discuss the lead-silver system with phase diagram.   10

OR

c) Explain Ostwald's dilution Law-calculate specific conductance when 0.1 solution   10
of a salt is placed between two platinum electrodes 2cm. apart and area of cross
section 4 cm^2 has a resistance of 200 ohms.

d) State and explain Kohlrausch's law. Give its applications.   10

Q2   a) Define reversible electrode. Discuss different types of reversible electrodes with   10
suitable example.

b) Derive Henderson-Hasselbalch equation.   10

OR

Write short notes. (Any four)   20

a) Nicotine-water system.

b) Ideal and non-ideal solutions.

c) Arrhenius theory of electrolytic dissociation.

d) Wet corrosion.

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e) Electrochemical series.

f) Types of conductometric titrations.

Q3 Choose and write the correct answer of the following.   10

    1. Triple point of water system is _____.

      a) Monovariant

      b) Divariant

      c) Trivariant

      d) Invariant

    2. Critical solution temperature of phenol-water system is _____.

      a) $60°C$

      b) $68°C$

      c) $80°C$

      d) $100°C$

    3. The critical pressure of water system is ____.

      a) 1 atm

      b) 100 atm

      c) 218 atm

      d) 500 atm

    4. The phase rule was first discovered by _____.

      a) Nernst

      b) Arrchenius

      c) Gibbs

      d) Bohr

    5. Ostwald's dilution law is applicable by _____.

      a) Acids

      b) Bases

      c) Strong electrolytes

      d) Weak electrolytes

6. The unit of cell constant is _____.

   a) Cm^{-1}

   b) Cm2

   c) Cm

   d) Cm^{-2}

7. Sodium acetate is salt of _____.

   a) Weak acid and weak base

   b) Weak acid and strong base

   c) Strong acid and strong base

   d) Strong acid and weak base.

8. Daniell cell is an example of _____.

   a) Irreversible cell

   b) Reversible cell

   c) Both

   d) None of these

9. The PH of acid solution is _____.

   a) Equal to seven

   b) Below the seven

   c) Above the seven

   d) None of these

10. In an electrolytic conduction the fraction of the total current carried by the cation or anion is called its _____.

   a) Atomic number

   b) Mass number

   c) Gold number

   d) Transport number