Printed Pages: 02   **Sub Code:PHARM121**
Paper Id: | 150243 | **Roll No.** [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

B PHARM
(SEM-II) THEORY EXAMINATION 2018-19
PHYSICAL CHEMISTRY

Time: 3 Hours   *Total Marks: 100*
Note: **1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**   **2 x 10 = 20**

   a. Define the termGas constant.
   b. Define the term surface tension and also give its unit.
   c. What is Molar Refraction?
   d. Define Anisotropy.
   e. What is Molar heat capacity?
   f. State second law of thermodynamics.
   g. Differences betweenphysical adsorption and chemical adsorption.
   h. Define specific and molar conductance.
   i. What is transport number?
   j. Define congruent and incongruent melting point.

SECTION B

2. **Attempt any *three* of the following:**   **10 x 3 = 30**

   a. Discuss the causes of deviation of real gases from ideal gas behaviour. How are they accounted for in the Van der Waal's equation?
   b. Define viscosity and coefficient of viscosity. Describe one method of determining the viscosity ofliquids.
   c. What is adsorption? Define the terms 'adsorbent' and adsorbate' giving suitable examples. Describe thephenomenon of the adsorption of solids from a solution.
   d. What are buffers and how is their buffer capacity measured?
   e. Write down the methods for determination of equivalent conductance at infinite dilution for strongand weak electrolytes.

SECTION C

3. **Attempt any *one* part of the following:**   **10 x 1 = 10**

   (a) What is meant by unit cell of crystal? Sketch the unit cell of simple body centred and face centred cubicspace lattice and calculate the number of atoms per unit cell in these systems.
   (b) State Hess' Law of constant heat summation and explain some of its important applications.

4. **Attempt any *one* part of the following:** **10 x 1 = 10**

   (a) State the first law of thermodynamics in as many ways as possible. Obtain the mathematical expressionfor the law with sign conventions.

   (b) Explain briefly the collision theory of reaction rates. What are its limitations and how far they areovercome by theory of absolute reaction rates?

5. **Attempt any *one* part of the following:** **10 x 1 = 10**

   (a) Derive Ostwald's dilution law of weak electrolytes.

   (b) Derive an expression for the rate constant for 2nd order reaction assuming the initial concentrationto be the same.

6. **Attempt any *one* part of the following:** **10 x 1 = 10**

   (a) What is Kohlraush law? Give its application.

   (b) Derive rate constant for second order reaction when both reactants are different.

7. **Attempt any *one* part of the following:** **10 x 1 = 10**

   (a) Define electrolysis.Explain faraday's law of electrolysis.

   (b) Draw the complete phase diagram for water system and prove that the conclusions in regard to thedegree of freedom as derived from the diagram are the same as the deduction from the phase rule.