B. PHARM.

(SEM. II) EXAMINATION. 2006-07

PHYSICAL CHEMISTRY

Time : 3 Hours] [Total Marks : 80

Note : (i) Answer all the questions.
          (ii) All questions carry equal marks.

1 Attempt any four of the following : 4\times4
   (a) What are the assumptions of kinetic molecular theory of gases ?
   (b) Derive van der Waals equation of state for Real Gases
   (c) Define surface tension. What methods are employed to determine surface tension ?
   (d) Describe briefly ideal and real solutions.
   (e) Define Molal Depression Constant. Write a method to determine the molecular weight of non volatile solute.

2 Answer any four of the following : 4\times4
   (a) State and explain first law of thermodynamics
   (b) Distinguish between :
       (i) Isothermal and adiabatic process
       (ii) Reversible and Irreversible process.
   (c) Describe briefly Joule Thomson Effect.
(d) Define: Adsorption, Absorption, Adsorbate, Adsorbent.
(e) Describe Langmuir adsorption isotherm.

3 Answer any four of the following: 4×4
(a) Define pH. What are the methods for determining pH of a solution?
(b) Derive an equation for First Order Reaction.
(c) State and explain Kohlrausch Law.
(d) Write a note on: Complex Reactions
(e) Describe Homogeneous and heterogeneous catalysis.

4 Write notes on any four of the following: 4×4
(a) Heat of Formation
(b) Enthalpy of solution and Enthalpy of Hydration.
(c) Heat of Combustion
(d) Heat of Neutralization
(e) Exothermic and Endothermic Reactions.

5 Answer any four of the following: 4×4
(a) State Phase Rule. What are its applications over water system?
(b) Describe the validity of distribution law in case of association or dissociation of solute in one of the phases.
(c) What are the different types of crystal systems?
(d) Write brief notes on:
   (i) Partition coefficient
   (ii) Congruent and Incongruent melting point
   (iii) What are the features of a crystal?