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PH – 121

(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 5046**

Roll No.

## 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 : **4×4**

- (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 : **4×4**

- (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 ?