

**S.Y.B.PHARM. SEMESTER-III (CBCS - 2015 COURSE) :**

**WINTER - 2017**

**SUBJECT : PHYSICAL PHARMACY – I**

Day : **Wednesday**  
Date : **15/11/2017**

Time : **02.00 PM TO 05.00 PM**  
Max. Marks : **60**

**W-2017-3791**

**N.B.:**

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

**SECTION – I**

- Q.1** Answer **ANY FIVE** of the following: [10]
- a) Differentiate between ideal and real solutions.
  - b) Explain additive properties with examples.
  - c) Define : i) CST ii) Molarity.
  - d) What is compressibility factor? Give its significance.
  - e) What is Joule Thomson effect?
  - f) Determine 'F' for water, water vapour and ice in equilibrium.
- Q.2** a) Explain in detail binding forces between molecules. [06]  
b) Derive Gibbs phase rule. What is reduced phase rule? [04]
- Q.3** a) Define colligative properties. Explain any one detail. [06]  
b) Derive Van der Waal's equation for real gases. [04]
- Q.4** Write notes on **ANY TWO** of the following: [10]
- a) One component three phase system
  - b) Methods for liquefaction of gases
  - c) Debye Huckel theory

**SECTION – II**

- Q.5** Answer **ANY FIVE** of the following: [10]
- a) Classify different thermodynamic equilibriums.
  - b) Give limitations of Nernst distribution law.
  - c) Differentiate between order and molecularity of a reaction.
  - d) Give significance of accelerated stability studies.
  - e) Classify solvents based on dielectric constant.
  - f) Enlist ways of decomposition of medicinal agents.
- Q.6** a) Give an account of methods used to determine order of reaction. [06]  
b) Describe transition state theory. [04]
- Q.7** a) Derive an expression for solubility parameter. [06]  
b) For a certain first order reaction  $t_{1/2}$  is 100 sec. How long will it take for the reaction to be completed 75% [ $\log 2 = 0.3010$ ]? [04]
- Q.8** Write short notes on **ANY TWO** of the following: [10]
- a) Solubility of gases in liquids
  - b) Second order reaction
  - c) Effect of molecular association and dissociation on partition coefficient

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