

Pharmacy,

Code No. 8050 / S

FACULTY OF PHARMACY**B. Pharmacy III Year I – Semester (Suppl.) Examination, April 2015****Subject: Physical Pharmacy – I****Time: 3 Hours****Max.Marks: 70*****Note: Answer all questions. All questions carry equal marks.***

- 1 (a) i) Explain the postulates of the kinetic molecular theory. (5)
ii) What is X-ray diffraction and how is it used in the pharmaceutical field? (5)
iii) State and explain Gibb's phase rule. (4)
- OR**
- (b) i) Explain any two methods of achieving liquefaction. (5)
ii) What is the effect of intermolecular forces on the melting point of a solid. (5)
iii) Explain the phase diagram of a two component system. (4)
- 2 (a) i) Write about entropy and disorder of a system and its application in pharmaceutical systems. (6)
ii) State and explain first and second law of thermodynamics. (8)
- OR**
- (b) i) Explain heat of formation and heat of combustion. (6)
ii) Write about Hess law of constant heat summation and give its applications. (8)
- 3 (a) i) Differentiate between ideal and real solutions. (5)
ii) Discuss the modern theory of strong electrolytes. (5)
iii) What is sorenson's pH scale. (4)
- OR**
- (b) i) What are colligative properties? Explain freezing point depression as a colligative property and its application. (8)
ii) Derive the equation for determination of basicity constant and write its usefulness. (6)
- 4 (a) i) What is buffer ? Derive the buffer equation to prepare an acidic buffer system. (8)
ii) What is the molar ratio salt/acid, required to prepare a buffer of pH 5.76? pKa of the acid to be selected for this is 4.76. (6)
- OR**
- (b) i) What is buffer? Derive the buffer equation to prepare an acidic buffer system. (8)
ii) To a buffer system containing 0.1 mole each of acetic acid and sodium acetate, 0.01 mole of sodium hydroxide is added (pH of buffer system is 4.76). Calculate the change in conc. of sodium acetate. (6)
- 5 (a) i) Explain the relationship of EMF and H^+ ion concentration to determine the pH of a solution by pH meter. (8)
ii) What are ion selective electrodes? Write about the fluoride ion selective electrode. (6)
- OR**
- (b) i) Discuss the application of oxidation – reduction potentials of some compounds to be used as stabilizers in drug formulations. (7)
ii) What is catalysis and catalyst and explain the factors affecting the catalyst? (7)
