

FACULTY**B. Pharmacy 3/4 I – Semester (Main) Examination, November 2017****Subject : Physical Pharmacy – I****Time : 3 hrs****Max. Marks : 70****Note : Answer all questions. All questions carry equal marks.**

- 1 a) Explain polymorphism with examples. Write its significance. 7
b) Explain the phase diagram for a two component mixtures. 7
OR
- c) Write a note on :
i) Differential scanning calorimetry 7
ii) Liquid crystalline state 7
- 2 a) Explain law of conservation of energy and Hess's law of constant heat summation. 8
b) Define, explain and write applications of heat of combustion and heat of neutralization. 6
OR
- c) Define and explain second law of thermodynamics. 7
d) Explain enthalpy and entropy. 7
- 3 a) State Raoult's law. Explain positive and negative deviations of Raoult's law. 7
b) Explain the application of any two colligative properties in molecular weight determination. 7
OR
- c) Explain Arrhenius theory of electrolyte dissociation and its limitations. 7
d) Explain ionization of polyprotic electrolytes. 7
- 4 a) What are buffers? Derive Henderson Hasselbalch equation for acidic buffer. 7
b) Explain cryoscopic method and sodium chloride equivalent method for adjustment of isotonicity. 7
OR
- c) What is buffer capacity? Write Van Slyke's equation for buffer capacity and maximum buffer capacity. 7
d) How do you prepare a pharmaceutical buffer? 7
- 5 a) Give the description and working of glass electrode. 10
b) Write the Nernst equation. 4
OR
- c) Explain ion sensitive electrodes. 7
d) How do you determine pKa using potentiometry? 7
