

FACULTY**B. Pharmacy 3/4 I Sem. (Non CBCS) (Backlo) Examination, July 2019****Subject: Physical Pharmacy I****Time: 3 Hrs****Max. Marks: 70****Note: Answer all questions. All questions carry equal marks.**

1. (a) Write and explain the postulates of the kinetic molecular theory. 5
(b) Explain the various methods of achieving liquefaction of gases. 9
OR
2. (a) Write a note on Gibbs phase rule. Explain the phenol-water system. 7
(b) Write the importance of thermal analysis. Explain DSC and DTA with applications. 7
3. (a) Explain laws of conservation of energy and meaning of energy balance and its importance in thermodynamics. 7
(b) State and explain first law of thermodynamics. 7
OR
4. (a) Define i) Heat of formation and combustion ii) Enthalpy and Entropy. 9
(b) Write Free Energy functions and applications. 5
5. (a) What are ideal solutions and real solution? Explain derivations of Raoult's law. 6
(b) Explain colligative properties of solutions of nonelectrolytes. 8
OR
6. (a) Explain the concepts of activity and activity coefficients. 5
(b) Derive an equation for ionization of weak acids. 9
7. (a) Explain different methods for adjusting isotonicity. 9
(b) Write a brief note on i) pH indicators ii) Physiological buffer. 5
OR
8. (a) Derive Henderson Hasselbalch buffer equation for a weak acid and its salt. 8
(b) Write Van Slyke's equation for buffer capacity and maximum buffer capacity and its applications. 6
9. (a) Write a note on different types of electrodes. Explain Hydrogen and Glass electrodes. 9
(b) How do you measure EMF of a cell? 5
OR
10. (a) Write application of Oxidation Reduction Potentials (Redox potentials) in pharmacy. 6
(b) What is catalysis and catalyst? Write types of catalysts, catalytic reactions. Write factors affecting on the catalysis. 8
