Code No. 13257/Non-CBCS

# FACULTY OF PHARMACY

## B. Pharmacy 3/4 I-Sem. (Non-CBCS) (Backlog) Examination, July 2019

## Subject: Physical Pharmacy - I

**Time: 3 Hours** **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-Hassel balch buffer equation for a weak acid and its salt. 8
   (b) Write Van Slyke's equation for buffer capacity and maximum buffer capacity and it's 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 if catalysts, catalytic reactions. Write factors affecting on the catalysis. 8

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