FACULTY

B. Pharmacy III/IV I – Semester (Non CBCS) (Backlo) Examination, November 2018

Subject: Physical Pharmacy I

Time: 3 Hrs **Max. Marks: 70**

Note: Answer all questions. All questions carry equal marks.

1. a) State and explain ideal as law and the Vander Waals equation for real ases. 5
   b) State and explain the methods for liquefaction of ases. 6
   c) Write a note on liquid crystalline state. 3

OR

   d) State ibbs phase rule. Explain the phase diaram for two components system. 8
   e) Write the principle of thermal analysis. Explain Differential Scannin Calorimetry (DSC) with applications. 6
2. a) State and explain first law of thermodynamics. 5
   b) Derive an expression for maximum work done in isothermal reversible expansion of an ideal as. 9

OR

   c) Derive an expression to determine efficiency of steam enine. 6
   d) Define i) Heat of formation ii) Heat of combustion iii) Heat of Neutralization 8
3. a) What are colliative properties? Explain any one colliative property in determination of molecular weiht. 9
   b) Write abt Soresen's pH scale and its applications. 5

OR

   c) Explain the concepts of activity and activity coefficients. Write and explain the Debye Huckel theory and osmotic coefficient for determinin activity coefficient. 7
   d) What are ideal solutions and real solution? Explain deviations of Ralt's law. 7

4. a) What is buffer? Derive the buffer equation to prepare an acidic buffer system. 8
   b) Write characteristics of buffers. Write applications of buffers *in vivo* bioloical buffer systems with examples. 6

OR

   c) Explain varis methods to adjust isotonicity and pH. 10
   d) Write Van Slyke's equation for buffer capacity and maximum buffer capacity and its applications. 4

contd..2..

5. a) Write a note on different types of electrodes. Explain measurement of pH usin Hydroen electrode. 9

b) How do y measure EMF of a cell? 5

OR

c) Write a note on calomel electrode and hydroen electrode. 6

d) What is a catalysis and catalyst? Write types of catalysts, catalytic reactions. Write factors affectin on the catalysis.

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