(6) (9)

Roll No. .....
Total No. of Questions :10

Total No. of printed pages : 5

PHM-1.2.3 - PHARMACEUTICAL CHEMISTRY-II (PHYSICAL CHEMISTRY)

[B.Pharmacy, 2nd SEMESTER, 2056]

Time : 3 Hours **Maximum Marks : 80**

SECTION - A

Answer all the Questions. **(15x2=30)**

1. a) State Nernst Distribution Law.

   b) On what factors conductance of a solution depends.

   c) What are the causes of deviation from ideal behaviour shown by a real gas.

   d) Define dipolemoment with an example.

   e) What is the Kinetz energy of two moles of a gas?

   f) What is the density of ammonia at 27^0C and 3 atm pressure.

g) In the Freundlich adsorption equation what is the value of n?

h) Write any two differences between physical adsorption and chemisorption.

i) What are the limitations of First law of thermodynamics?

j) Calculate the work done during Bothermal expansion of one mole of an ideal gas from 10 atm to 1 atm at 27^0C.

k) For a first order reaction the ratio of times to complete 99.9% and half of the reaction B?

l) For a chemical reaction x → y, the rate of reaction increases by a factor of 1.837. When the concentration of x B increased by 1.5 times, what is the order of the reaction with respect to X?

m) What is the physical significance of wave function (ψ)

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n) What is the Lambert - Beer's Law.

o) What is the criteria for Thermodynamic revesibility?

SECTION - B

Answer any four Questions. **(4x5=20)**

2. What are the coltigative properties? Explain briefly the effect of depression in freezing point.

3. Explain various theories of reaction kinetics with suitable examples.

4. Derive the schrodinger wave equation for hydrogen atom.

5. Explain Jablenski diagram? Discuss fluoroscence and phosphorence.

6. a) Define various statements of second law of thermodynamics.

   b) What is the efficiency of heat engine?

SECTION - C

Answer any Three Questions. (3x10=30)

7. a) What are the main postulates of the kinetic theory of gases?

   b) Calculate the average kinetic energy in joules of an ideal gas in 250cc flask at 27^0C and 755mm. By what factor will it increase if T =600K?

8) a) Derive the expression for the langmuir adsorption isotherm and discuss its behaviour at very low and high pressures.

   b) The vapour pressure of water at 30^0C B 31.5mm Hg. When 3.0g of non-volatile solute was dissolved in 54g of water, the vapour pressure of the solution was found to be 31.30mm Hg. Calculate the molar mass of the solute

9) a) Write notes as

i) Paraehor and its applications.

ii) Dipolemoment and its applications

b) A first order reaction has a specific rotation of 2×10^{-3} Sec. Calculate the half life of the reaction.

10) a) Discuss and explain the third law of thermody-namicss?

b) 0.44g. of a non-volatile solute when dissolved in 22 g of benzene lowered its freezing point by 0.567^0C. Calculate the molecular weight of the solute if the moral freezing point depression constant Kf of benzene is 5.12^0C mol^{-1}