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(8)

Total No. of Questions : 10]

[Total No. of Pages : 03

J-730[5375]

[2126]

B.Pharmacy (Semester - 2nd)

PHARMACEUTICAL CHEMISTRY - II (PHM - 1.2.3)

(PHYSICAL CHEMISTRY)

Time : 03 Hours **Maximum Marks : 80**

Instruction to Candidates:

1) Section - A is **compulsory.**
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Three** questions from Section - C.

Section - A

Q1) *(15 x 2 = 30)*

a) How does a real gas differ from an ideal gas?

b) The kinetic energy of a gas at 0°C is 5.621×10^{-21} J. Calculate the number of molecules in a mole of gas. ($R = 8.314\ Jk^{-1}\ mole^{-1}$).

c) What is dipolemoment, define it with example?

d) The radius of capillary is 0.1mm. A liquid whose density is 0.8 g/ml, rises in this capillary to a height of 6 cm. Calculate the surface tension of the liquid.

e) What is meant by chemical adsorption?

f) What are colligative properties? Name any two.

g) What are the factors affects adsorption?

h) Explain the term entropy? What are its units?

i) 5 moles of an ideal gas are filled in a vessel at 25°C and 5 atm. Calculate the amount of work done if the gas is allowed to expand isothermally into a vacuum.

j) What are characteristics of ideal solutions?

P.T.O.

k) What are intensive and extensive properties? Give one example for each.

l) What is quantum efficiency?

m) State law of photochemical equivalence. What is meant by quantum yield?

n) Write the schrodinger wave equation? What is the significance of ψ.

o) What is meant by pseudo unimolecular reactions? Explain with examples.

Section - B

(4 x 5 = 20)

Q2) Define the terms

(a) Refractive Index.

(b) Viscosity.

(c) Optical rotation.

Q3) Find ΔE, q and W, if 2 moles of hydrogen at 3 atm. pressure expand isothermally at 50°C and reversibly to a pressure of 1 atm.

Q4) (a) Differentiate between homogeneous and heterogeneous catalysis.

(b) What is meant by enzyme catalysis.

Q5) What are colligative properties? Explain briefly the effect of Depression in freezing point.

Q6) (a) Write a short note on Lamber's Beer-law.

(b) Describe Jablenski diagram.

Section - C

(3 x 10 = 30)

Q7) Derive the Kinetic Gas equation and deduce the gas laws based on the Kinetic gas equation.

Q8) Derive Langmuir adsorption theorem? Write the factors on which adsorption depends.

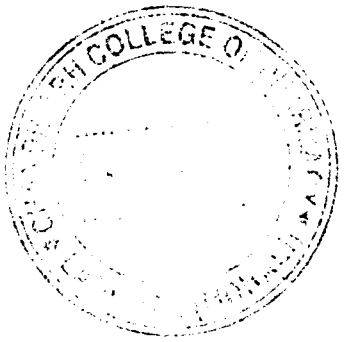
Q9) Discuss the Debye-Huckel theory of strong electrolytes? How it is experimentally verified.

Q10)(a) What are postulates of quantum mechanics?

(b) (i) Hamiltonian operator.

(ii) Hermitian operator.

Discuss briefly.



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