

Name of the Course: B.Sc. (Prog) Life Science	Semester: VI
Name of the Paper: IT Skills for Chemists	Maximum Marks: 10
Faculty Name: Dr. Rangnath Ravi	Last Date of Submission: 04-04-2024

- Express van der Waal's equation in terms of pressure (P).
- The equilibrium constant K for dissociation of chlorine is given by $K = \frac{[Cl]^2}{[Cl_2]}$. Derive an expression for K in terms of (CH).
- Express the following quantities in standard (scientific) form:
 - avogadro's number = $6.023000000000000000000000 \text{ mol}^{-1}$
 - 1 eV = $1.60219 \times 10^{-19} \text{ J}$
- Express the following quantities in their SI units (exact value):
 - energy of 1 calorie
 - energy of 1 erg
- The Dietrici equation of state is $P e^{a/V_m RT} (V_m - b) = RT$ where P is pressure, T is temperature, V_m is molar volume, R is gas constant, a and b are constants. A fairly good approximation we, can say $e^{a/V_m RT} = 1 + a/V_m RT$ Using this approximation into the original equation of state simplify the above equation into quadratic equation of V_m .

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