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SHIVAJI COLLEGE, UNIVERSITY OF DELHI

DEPARTMENT OF CHEMISTRY

INTERNAL ASSIGNMENT/PROJECTS/PRESENTATIONS

(Academic Year 2023-24)

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Name of the Course: B.Sc. (Prog) Physical 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

Attempt all questions.

1. Express van der Waal's equation in terms of pressure (P).
2. The equilibrium constant K for dissociation of chlorine is given by $K=[Cl]^2/[Cl_2]$. Derive an expression for K in terms of (CH].
3. Express the following quantities in standard (scientific) form:
    a.) avogadro's number= 6023000000000000000000 mol^{-1}
    b.) leV= 0.000000000000000000 160219 J
4. Express the following quantities in their SI units (exact value):
    (a.) energy of 1 calorie
    (b.) energy of 1 erg
5. The Dietrici equation of state is $P\, e^{a/mRT}(V_m-b) = RT$ 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 $e^{a/vmRT} =1+ a/V_mRT$ Using this approximation into the original equation of state simplify the above equation into quadratic equation of V_m.

Faculty Signature: *Rangnath Ravi*