Assignment 1
Chemistry GE-4
Last date of submission-28/05/2022

1. Calculate the temperature at which root mean square velocity of CO_2 gas is the same as that of Cl_2 gas at 293 K. (**2**)
2. At what temperature root mean square velocity of SO_2 molecules is half that of He molecules at 300 K? (**2**)
3. Show that the excluded volume is four times the actual volume of a gas molecule. (**2**)
4. Write two postulates of kinetic theory of gases which are responsible for the deviation of gases from ideal gas behavior. (**2**)
5. What do you mean by mean free path and collision frequency of a gas molecule? Explain the effect of temperature on mean free path. (**1 + 1**)
6. With the help of Kinetic gas equation deduce Charles' law. (**2**)
7. The temperature at which a gas obeys the ideal gas laws at a given range of pressure is (**1**)

   a. Critical temperature b. Reduced temperature

   c. Boyle's temperature d. All of the above

8. Show that $\frac{RTc}{PcVc} = \frac{3}{8}$ (**2**)