

Model Activity Task

Class - X

Physical Science

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Answer the following questions.



1. Determine the value of 'R' from dimensional analysis.
2. The mass of a gas of volume 112 mL at STP is 0.22g.
How many molecules are present in that sample?
What is the molar mass of the gas?
3. What are the main reasons behind the failure of real gases acting as ideal gases?
4. Why does the sky appear blue during daytime? Where should be the object kept in order to use a convex lens as a magnifying glass?
5. Why are the elements belonging to Group –I in Periodic Table called 'Alkali Metals'?

Hints:



1. $R = PV/T$; $P = F/A$. Put the units of F , A , V and T in order to find out the required unit of 'R'.
2. Use the formula $PV = nRT$ and put the values of P , V , R and T in order to find out n . Then by using n find out the number of molecules.
 - To find out the molar mass use $M = dRT/P$
3. Molecules have finite volume and intermolecular force of attraction. – Elaborate these two points.
4. Dependence of scattering on wavelength.- Elaborate this point.
 - Mention the position of the object for which the lens forms an erect, virtual and enlarged image.
5. Hydroxides of these metals are strongly alkaline.- Give examples with this reason.