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Which of the following compound can't exist

- 1) SiF_6^{-2} 2) $SiCl_6^{-2}$ 3) $GeCl_6^{-2}$ 4) PbI_2



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In correct order

- 1)** Atomic size : $B < Ga < Al < In < Tl$ **2)** Electronegativity order : $B > Tl > In > Ga > Al$
3) Melting point order : $C > Si > Ge > Sn > Pb$ **4)** Stability order : $Pb^{+2} > Sn^{+2} > Ge^{+2}$



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Boric acid acts as strong acid in presence of

- 1) HCl 2) HNO_3 3) CH_3COOH 4) Glycol



Correct statement about $AlCl_3$

- 1) Anhydrous $AlCl_3$ covalent 2) It's aqueous solution contain octahedral cation 3) It attain stability by forming chlorobridge dimer
4) All are correct



Above boyle temperature gases show

1) Ideal behaviour **2)** positive deviation **3)** both positive and negative deviation **4)** all



Under critical conditions compressibility factor

1) 1

2) 2

3) $\frac{3}{8}$

4) $\frac{8}{3}$



Correct statement about borax

- 1) It's Aqueous solution basic in nature 2) On hydrolysis it gives two tetrahedral units & two trigonal planar units
3) It contain 5 $B - O - B$ bonds 4) It contain 8 molecules of water as crystal of hydration



Correct statement about Diborane

- 1) It is electron deficient compound 2) It contain six planar Hydrogen atoms 3) It undergo cleavage reaction with carbon monoxide
4) On hydrolysis it gives Hydrogen gas and tribasic acid



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Correct statement

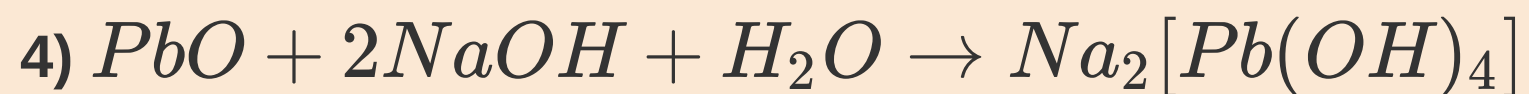
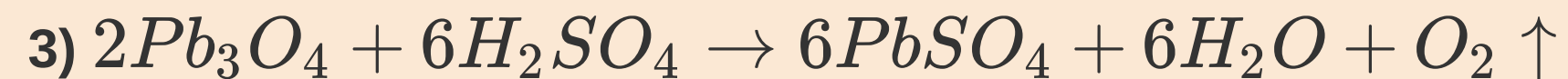
- 1) Energy order : Fullarence > Diamond > Graphite 2) C_{60} aromatic in nature 3) In C_{60} all carbon atoms under go sp^2 Hybridisation
4) SiO_2 & Diamond both are soluble in HF



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Correct reaction





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Bond present in silicones

1) $Si - C$ 2) $Si - O - Si$ 3) $Si - Si$ 4) $C - H$



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SiO_2 react with

1) HF 2) $NaOH$ 3) HCl 4) $CaCO_3$



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An evacuated glass vessel weighs 50g when empty, 148g when filled with a liquid of density 0.98 g/mL and 50.5g when filled with an ideal gas at 760 mm Hg at 300k. Determine the molecular weight of the gas _____ (R= 0.082 lit-atm-K⁻¹-mole⁻¹)



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Calculate the pressure exerted by 16g of methane in 250 mL container at 300k using Vander Waal equation _____ atm
\$a = 2.253 \text{ atm lit}^2 \text{ mole}^{-2}\$ \$b = 0.0428 \text{ L - mole}^{-1}\$



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The u_{rms} of O_2 if its density at 1 atm pressure and 0°C is $1.4290\text{g litre}^{-1}$ is _____



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Sum of the intercept on y-axis and slope of curve plotted between P/T v/s T is _____. for an ideal gas having 10 moles in a closed rigid container of volume 8.21 L. (P = Pressure in atm and T = Temp. in K.)



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A balloon is filled upto $3/4^{\text{th}}$ of its maximum stretching capacity at 30°C . The temperature upto which the balloon can be safely heated at constant pressure is _____K.



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What will be the temperature difference needed in a hot air balloon to lift 1.00 kg of mass ? Assume that the volume of the balloon is 100 m³, the temperature of the ambient air is 298 K, the pressure is 1.00 bar, and the air is an ideal gas with average molar mass of 29g mol⁻¹
