

INTERNATIONAL INDIAN SCHOOL RIYADH

WORKSHEET

CLASS :XI

SUB:CHEMISTRY

Basic concepts of chemistry

1. Express in the scientific notation

(i) 0.0025 (ii) 2.013 (iii) 0.1312 (iv) 234,000 (v) 500.0

2. In three moles of ethane, calculate the following

(i) Number of moles of carbon atoms

(ii) Number of moles of hydrogen atoms

3. Calculate the weight of FeO formed from 2 g of VO and 5.75 g of Fe₂O₃. Also report

the limiting reagent. $2VO + 3Fe_2O_3 \longrightarrow 6FeO + V_2O_5$

4. What mass of CaCl₂ will be formed when 250 ml of 0.76 M HCl reacts with 1000 g of CaCO₃? Name the limiting reagent. Calculate the number of moles of CaCl₂ formed in the reaction.

5. How many grams of KClO₃ must be decomposed to prepare 3.36 litres of oxygen at STP?

6. Conc. HCl is 38% HCl by mass. What is the molarity of the solution if $d = 1.19 \text{ g cm}^{-3}$?

What volume of conc. HCl is required to make 1L of 0.10 M HCl.?

7. An organometallic compound on analysis was found to contain C = 64.4%, H = 5.5%, and Fe = 29.9%. Determine its empirical and molecular formula.

8. If 4 g of NaOH dissolves in 36 g of H₂O, calculate the mole fraction of each component in the solution. Also determine the molality of the solution.

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Chemical bonding and Molecular structure

- 1.CO₂ and SO₂ are triatomic molecules but the dipole moments are different ,Why?
- 2.Why does He₂ not exist?
- 3.Why is water a liquid at room temperature whereas H₂S a gas?
- 4.Which out of NH₃ and NF₃ has higher dipolemoment ,Why?
- 5.All the C-O bonds in CO₃²⁻ are equivalent.why?
- 6.Compare the relative stability of the following species and indicate their magnetic properties. O₂ , O₂⁺ , O₂⁻ , O₂²⁻
- 7.Draw the molecular structures of :
BrF₅, XeF₄, NH₃, PCl₅, SF₆, ClF₃
- 8.Define hybridization .Explain hybridization of (i) C₂H₂ (ii) C₂H₄(iii) C₂H₆
(iv)PCl₅(v)SF₆ (vi)NH₃
- 9.Write Lewis structures of CO₃²⁻ , NO₂⁻ ,CO
10. Write 1.postulates of VSEPR theory
 - 2.Features of hybridization
 - 3.Difference between BMO and ABMO