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1. How many gm moles oxygen are there in 88 gms carbon di oxide?

- a) 1
- b) 2
- c) 3
- d) 4

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Answer: d

Explanation: $88\text{gms of CO}_2 = 2 \text{ moles of CO}_2 = 4 \text{ moles of oxygen.}$

2. What is the percent water in $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$?

- a) 12
- b) 14
- c) 16
- d) 18

View Answer

Answer: c

Explanation: Percentage water = mass of water in the molecule/Total mass of the molecule.

3. What is the average molecular weight of a gas containing 20% N_2 (molecular wt. = 28) and 80% SO_2 (molecular wt. = 64)?

- a) 28.4
- b) 56.8
- c) 24.4
- d) 48.8

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Answer: b

Explanation: Take 1 gm mole of the Gas and then average molecular weight = $0.20 \times 28 + 0.80 \times 64.$

4. Two statements are given as

- (1) When a percentage of fractions is given for gas, it is assumed that it refers to a mole fraction
- (2) When a percentage of fractions is given for liquid or solid, it is assumed that it refers to the weight fraction

True statements are

- a) 1
- b) 2
- c) Both 1 and 2
- d) Neither 1 nor 2

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Answer: c

Explanation: This is a simple assumption, unless otherwise specified.

5. A bucket contains 10 kg of water and 10 kg of NaOH. The respective mass fraction of water and the mole fraction of NaOH are

- a) 0.5 and 0.31
- b) 1.0 and 0.62
- c) 0.5 and 0.69
- d) 1.0 and 0.50

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Answer: a

Explanation: Mole fraction of X = moles of X/total moles and mass fraction of X = mass of X/total mass.

6. What is the formula for a solid compound that contains 42.11% C, 51.46% O, and 6.43% H and having molecular weight about 341.

- a) C₁₀O₁₂H₂₉
- b) C₁₁O₁₃H
- c) C₁₂O₁₁H₂₂
- d) C₁₂O₁₀H₃₇

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Answer: c

Explanation: Take 100 g of the compound and calculate the ratio of the molecules, then make it integer to get the chemical formula.

7. If in a compound the moles of consisting atoms are doubled then the mole fraction of a particular atom will be

- a) Double
- b) Half
- c) Remain same
- d) None of the mentioned

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Answer: a

Explanation: mole fraction of X = moles of the X/total moles.

8. Select the correct statement

- a) 1 mole of SO₂ and 64 g of Ethyl Chloride have same number of moles
- b) 1 mole of SO₂ and 64 g of Ethyl Chloride don't have same molecular weights
- c) Both a and b
- d) Neither a nor b

View Answer

Answer: a

Explanation: 1 mole of SO₂ = 64 g = 1 mole of Ethyl Chloride.

9. What is a mole?

- a) A mole is found in a certain number of cm³ of one substance or another.
- b) A mole is the sum of atomic weights.
- c) A mole is the number of molecules in one gram of a substance.

d) None of the mentioned

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Answer: d

Explanation: A mole is number of molecules.

10. What will be the molecular weight of a chemical, consisting 2 moles of H_2SO_4 , 3 moles of SO_2 and 1 mole of NaOH ?

a) 128

b) 228

c) 328

d) 428

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Answer: d

Explanation: Molecular weight = 2 moles of $\text{H}_2\text{SO}_4(98)$ +3 moles of $\text{SO}_2(64)$ +1 mole of $\text{NaOH}(40)$.