**Chapter 9- Solutions**

1. Solute + Solvent → Solution
2. Weight percent = Weight of the solute X 100

Weight of solute + Weight of solvent

1. Solubility of NaCl = Mass of NaCl X 100

Mass of water

**Chapter 10 - Atoms and Molecules**

1. Relative molecular mass of a gas = Mass of 1 molecule of the gas or vapour

Mass of 1 atom of hydrogen

For eg - Relative molecular mass of Oxygen = 2 X 16 = 32

1

1. 2 x Vapour density = Relative molecular mass
2. Avogadro number = 6.023 x 1023
3. Number of moles = Given Mass

Atomic Mass

For eg : Calculate the number of moles in 81g of aluminium.

Ans: Number of moles = 81 = 3 moles of aluminium

27

1. mass = atomic mass x number of moles

For eg: Calculate the mass of 0.5 mole of iron.

Ans: mass = = 55.9 x 0.5 = 27.95 g

1. Number of moles = Given Mass

Molecular Mass

For eg: Calculate the number of moles in 90g of water.

Ans : molecular mass of water = 2 X 1+ 16 = 18g

Number of moles = 90 = 5 moles

18

1. Number of moles = No. of Atoms

6.023 X 1023

1. Number of moles = No. of Molecules

6.023 X 1023

For eg: Calculate the number of molecules in 11g of CO2.

Ans : molecular mass of CO2 = 12+ 2X16 = 44g

11= No. Of molecules

44 6.023 X 1023

No. Of molecules = 6.023 X 1023 X 11 = 1.51 x 1023 molecules

44

1. Mass of a substance = molecular mass x number of particles/molecules

6.023 X 1023

For eg: Calculate the mass of 18.069 x 1023 molecules of SO2

Ans : molecular mass SO2 = 1 X 32 + 2 X 16 = 64g

Mass of SO2 = 64 x 18.069 x 1023 = 192 g

6.023 X 1023

1. Number of moles = Number of molecules

Avogadro number

For eg: Calculate the number of moles for a substance containing 3.0115 x1023 molecules in it.

Ans : Number of moles = 3.0115 x1023 = 0.5 moles

6.023 x1023

**Chapter 11 - Chemical Reactions**

* pH = -log [ H+ ]

For eg: The hydrogen ion concentration of a solution is 0.001M. What is the pH of the solution?

Ans : pH = – log10 (0.001)

pH = – log10 (10-3 )

= - (-3) log10 10 [log 10 =1]

pH = 3

* pH + pOH = 14
* pOH = -log10 [ OH- ]

For eg: The hydroxide ion concentration of a solution is 0.001M. What is the pH of the solution?

Ans : pOH = –log10 (10–3 )

pOH = 3

pH = 14 – pOH

pH = 14 – 3 = 11

**Atomic Number and Their Atomic Mass**

**Element Symbol Atomic Mass**

1. Hydrogen H 1
2. Helium He 4
3. Lithium Li 7
4. Beryillium Be 9
5. Boron B 11
6. Carbon C 12
7. Nitrogen N 14
8. Oxygen O 16
9. Fluorine F 19
10. Neon Ne 20
11. Sodium Na 23
12. Magnesium Mg 24
13. Aluminium Al 27
14. Silicon Si 28
15. Phosphorus P 31
16. Sulphur S 32
17. Chlorine Cl 35
18. Argon Ar 40
19. Potassium K 39
20. Calcium Ca 40

Hi He Lies Because Boys Can Not Operate Fire New Nations Might Also Sign Peace Security Clause Army King Can