

# ASN Sr. Sec. School

Mayur Vihar

Class XI

## CHEMISTRY

### ASSIGNMENT – 1

Q1. Derive the SI unit of (a) acceleration (b) pressure.

Q2. Round up the following upto three significant figures:

(a) 34.216 (b) 10.4107 (c) 0.04597 (d) 23808

Q3. Express each of the following in SI units:

(a) 5 feet 2 inches (b) 46°C (c) 150 pounds (d) 96 miles per hour

Q4. What is the difference between 0.006 and  $6.00 \times 10^{-3}$ g?

Q5. The relative abundance of various isotopes of silicon is as Si (28) = 92.25%, Si (29) = 4.65% and Si(30) = 3.1%. Calculate the average atomic mass of silicon.

Q6. Calculate the mass of (i) one atom of calcium (ii) one molecule of SO<sub>2</sub>.

Q7. Calculate the number of atoms in :

(i) 0.5 mol of C-12 (ii) 3.2g of S (iii) 0.20 mol of O<sub>2</sub> (iv) 18g of glucose

Q8. Calculate the mass of sodium which contains same number of atoms as are present in 15g of calcium.

Q9. Calculate the percentage of water of crystallisation in green vitriol.

Q10. Butyric acid contains C=54.3%, H=9.0%, and rest is oxygen . If the molecular mass of acid is 88u then find the molecular formula.

Q11. How much grams of Fe is produced when 1 kg of Fe<sub>2</sub>O<sub>3</sub> reacts with H<sub>2</sub>?

Q12. Give one example each of a molecule in which empirical formula and molecular formula are

(i) same (ii) Different.

Q13. (a) At NTP, what will be the volume of molecules of  $6.022 \times 10^{23}$  H<sub>2</sub> ?

(b) Calculate the number of molecules present in 0.5 moles of CO<sub>2</sub> ?

(c) What is the value of one mole?

Q14. (a) 1L of a gas at STP weighs 1.97g. What is molecular mass?

(b) Write empirical formula of following –

CO, Na<sub>2</sub>CO<sub>3</sub>, KCl, C<sub>6</sub>H<sub>12</sub>, H<sub>2</sub>O<sub>2</sub>, H<sub>3</sub>PO<sub>4</sub>, Fe<sub>2</sub>O<sub>3</sub>, N<sub>2</sub>O<sub>4</sub>.

Q15. (a) Calculate the number of moles in the following masses –

(i) 7.85g of Fe

(ii) 7.9mg of Ca

(b) A bottle contains 500mL of 2.4 M HCl solution. How much water should be added to dilute it to 1.6 M HCl solution?

- (c) 0.63g of oxalic acid is dissolved in 500mL of solution. Calculate the molarity of the solution?  
(d) The density of 3 molal solution of NaOH is 1.10g/mL. Calculate the molarity of the solution.  
(e) What mass of solid AgCl is obtained when 25mL of 0.068M AgNO<sub>3</sub> reacts with excess of aqueous HCl ?

### ASSIGNMENT – 2

1. Give the full form of AZT. Give its use.
2. How will you justify that water is a compound and not a mixture.
3. Classify the following into metals and non – metals. Helium, sodium, hydrogen, mercury, carbon, graphite, lead, magnesium, chlorine, phosphorus
4. Name two life saving drugs.
5. Why air is sometime regarded as heterogeneous mixture.
6. Convert 25°C into Kelvin and °F.
7. The body temperature of a normal healthy person is 98.4°F. Convert it into Celsius scale.
8. Give the S.I unit of:  
velocity, force, pressure, energy.
9. Convert 2.6 min in seconds.
10. The wavelength of a beam of light is 5894Å°. Express the value in nanometers.
11. Convert 6 cubic meters into cubic centimeters.
12. Express the following in SI unit:  
(a) 92 million miles ( 1 miles= 1.60 km)  
(b) 140 pounds (1 pound = 453.6 x 10<sup>-3</sup> kg)  
(c) 5 feet and 4 inches (1 inch = 2.54 x 10<sup>-2</sup> m)
13. How many milligrams of bromine is present in a bottle containing 1/10 kg.
14. An object travels with the speed of 96 miles per hour. Calculate the speed of the object in SI unit.
15. What do the following abbreviations stand for:  
(a) dL (b) dm (c) µm (d) nL
16. State the number of significant figures in the following numbers.  
(a) 62.4 (b) 0.0405 (c) 8.8674 (d) 50.0 (e) 0.0025 (f) 208 (g) 5005 (h) 126,000 (i) 600.0
17. What are the prefixes to the following multiples?  
(a) 10<sup>-6</sup> (b) 10<sup>9</sup> (c) 10<sup>-12</sup> (d) 10<sup>-2</sup>
18. What is the difference between 3.0g and 3.00g?
19. The population of India based on 1981 census figure was 6.84 millions. Express the results in scientific notation and calculate the number of significant figures.
20. Express the following in scientific notation form.  
(a) 0.0048 (b) 236,000 (c) 8008 (d) 600.0 (e) 500 (f) 783.4

21. Add the numbers 28.521, 6.38 and 0.216 and report the final result correctly.
22. The mass of copper metal is 6.342g and the density of copper is 7.6g/cm<sup>3</sup>. What is the volume?
23. What is the significant figure in  $1.050 \times 10^4$ ?
24. Round off up to 3 significant figure (a) 1.235 (b) 1.225
25. Give the two points of differences between homogeneous and heterogeneous mixtures.
26. State the number of significant figures in each of the following:  
(i) 208.91 (ii) 0.00456 (iii) 453 (iv) 0.346

### ASSIGNMENT – 3

1. Define one mole?
2. Calculate the formula mass calcium chloride.
3. What is the law called which deals with the ratios of the volumes of the gaseous reactants and products?
4. Copper oxide obtained by heating copper carbonate or copper nitrate contains copper and oxygen in the same ratio by mass. Which law is illustrated by this observation? State the law.
5. Write the empirical formula of the following:  
(a) N<sub>2</sub>O<sub>4</sub> (b) C<sub>6</sub>H<sub>12</sub>O<sub>6</sub> (c) H<sub>2</sub>O (d) H<sub>2</sub>O<sub>2</sub>
6. Define the law of multiple proportions. Explain it with one example.
7. Chlorine has two isotopes of atomic mass units 34.97 and 36.97. The relative abundance of the isotopes is 0.755 and 0.245 respectively. Find the average atomic mass of chlorine.
8. What is the percentage of carbon, hydrogen and oxygen in ethanol?
9. Define –  
(a) Average atomic mass (b) Molecular mass (c) Formula mass
10. Calculate the number of atoms in  
(a) 0.25 mol of Na (b) 0.20 mol of nitrogen.
11. Calculate the number of moles of iron in a sample containing  $1.0 \times 10^{22}$  atoms.
12. How many molecules and atoms of phosphorus are present in 0.1 mol of P<sub>4</sub> molecule?
13. What weight of calcium contains the same number of atoms as are present in 3.2g of sulphur?
14. Calculate the number of molecules in 11.2 L of CO<sub>2</sub> at STP.
15. Calculate the molar mass of a gas weighing 0.5g and occupying 1.12L at STP.
16. How many molecules are there in  $3 \times 10^{-4}$  L of CO<sub>2</sub> at STP?

