INDIAN SCHOOL DARSAIT

DEPARTMENT OF CHEMISTRY

Subject: Chemistry	Topic : Some basic concepts of chemistry	Date of Worksheet: 8.5.2019
Resource Person: Rohitha		Date of Submission:_____
Name of the Student: _____	Class &Division: XI	Roll Number: _____

1.	How are 0.5m Na_2CO_3 and 0.5M Na_2CO_3 different?	1
2.	Why is molality preferred over molarity in expressing concentration of a solution?	1
3.	Define one mole. What does 1 mole of NH_3 represent?	1
4.	In the reaction $2A+4B \longrightarrow 3C+4D$. when 5 moles of A react with 6 moles of B, then i) Which is the limiting reagent? ii) Calculate the amount of C formed.	2
5.	With the help of an example illustrate law of conservation of mass.	2
6.	Calculate the average atomic mass of chlorine using the following data %Natural abundance Molar mass ^{35}Cl 75.77 34.9689 ^{37}Cl 24.23 36.9659	2
7.	An organic compound containing carbon, hydrogen and oxygen gave the following percentage composition: C = 40.68%, H =5.08%. The vapour density of the compound is 59. Calculate the molecular formula of the compound.	2
8.	An oxide of nitrogen contains 30.43% of nitrogen. The molecular weight of the compound is equal to 92a.m.u. calculate the molecular formula of the compound.	2
9.	Calculate the number of atoms in i)0.5 mole atoms of carbon ii)3.2 g of Sulphur iii)18 g of glucose iv) 0.2 mole molecules of oxygen.	1 each
10.	Calculate the number of moles in i)7.85g of iron (atomic mass of Fe-56, Ca-40) ii)7.9 mg of Ca	2
11.	Carbon combines with hydrogen to form two compounds where the percentage of hydrogen is 25% and 14.3%. Show that the data are in agreement with law of multiple proportion.	2
12.	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.	2

13.	What do mean by molarity? Calculate the molarity of glucose in the solution prepared by dissolving its 18 g in enough water to form 250 mL of the solution	3
14.	Define –(a) Average atomic mass (b) Atomic mass unit (c) Formula mass	3
15.	a) How much potassium chlorate ($KClO_3$) should be required to produce 2.24L of oxygen at STP? b) State Avogadro's law.	3
16.	a) What will be the molality of the solution containing 18.25g of HCl gas in 500 g of water? b) If 4g of NaOH dissolves in 36 g of H_2O, calculate the mole fraction of each component in the solution. Also determine the molality of the solution	3
17.	a)Calculate the amount of carbon dioxide that could be produced when (i) 1 mole of carbon is burnt in air. (ii) 2 moles of carbon are burnt in 16 g of dioxygen. b) How much copper can be obtained from 100 g of copper sulphate ($CuSO_4$)?	3
18.	Determine the molecular formula of an oxide of iron in which the mass per cent of iron and oxygen are 69.9 and 30.1 respectively. Given that the molar mass of the oxide is 159.69 g mol^{-1}	2
19.	In three moles of ethane (C_2H_6), calculate the following: (i) Number of moles of carbon atoms. (ii) Number of moles of hydrogen atoms. (iii) Number of molecules of ethane.	3
20.	Chlorine is prepared in the laboratory by treating manganese dioxide (MnO_2) with aqueous hydrochloric acid according to the reaction $4HCl(aq) + MnO_2(s) \rightarrow 2H_2O(l) + MnCl_2(aq) + Cl_2(g)$ How many grams of HCl react with 5.0 g of manganese dioxide?	2