Test Paper | Chemistry-XI | Topic – Some basic concept of chemistry | Time: 1.5 -Hour, Marks 35

1 One a.m.u. is defined to be equal to   **1**
1. mass of carbon
2. mass of hydrogen
3. one twelfth of mass of carbon
4. one half of mass of hydrogen

2 Limiting reagent is   **1**
1. the reactant which is present in larger amount
2. the reagent which is present in lesser amount
3. the reactant which slows down the speed of reaction
4. the reagent which is required for completion of the reaction

3 What is the number of moles of atoms in 32 grams of oxygen?   **1**
1. 1 mole
2. 2 moles
3. 3 moles
4. 16 moles

4 When the temperature is 45 degrees in the Celsius scale, its value in the Fahrenheit   **1**
scale will be
1. 100 F
2. 113 F
3. 318 F
4. 273

5 What is the number of moles of hydrogen in 3 moles of methane?   **1**
1. 4
2. 10
3. 36
4. 12

6 What is the empirical formula of a compound comprising 1.8% hydrogen,   **2**
56.1% sulphur, and 42.1% oxygen?

7 I_2 is produced by the reaction of 0.4235 mol of $CuCl_2$ according to the   **2**
following equation: $2CuCl_2 + 4KI \rightarrow 2CuI + 4KCl + I_2$
a. How many molecules of I_2 are produced?
b. What mass of I_2 is produced?

8	Calculate the mass of sodium acetate (CH_3COONa) required to make 500 mL of 0.375 molar aqueous solution. Molar mass of sodium acetate is 82.0245 g mol^{-1}	2
9	Calculate the concentration of nitric acid in moles per litre in a sample which has a density 1.41 g mL^{-1} and the mass percent of nitric acid in it is being 69%.	2
10	If the density of methanol is 0.793 kg L -1, what is its volume needed for making 2.5 L of its 0.25 M solution?	3
11	How many significant figures are present in the following? (i) 0.0025 (ii) 208 (iii) 5005 (iv) 126,000 (v) 500.0 (vi) 2.0034	3
12	Dinitrogen and dihydrogen react with each other to produce ammonia according to the following chemical equation: (i) N_2 (g) + $3H_2$(g) ——> $2NH_3$ (g) (ii) Will any of the two reactants remain unreacted? (iii) If yes, which one and what would be its mass?	3
13	A welding fuel gas contains carbon and hydrogen only. Burning a small sample of it in oxygen gives 3.38 g carbon dioxide, 0.690 g of water and no other products. A volume of 10.0 L (measured at S.T.P.) of this welding gas is found to weigh 11.6 g. Calculate (i) empirical formula, (ii) molar mass of the gas, and (iii) molecular formula	3
14	Chlorine is prepared in the laboratory by treating manganese dioxide (MnO_2) with aqueous hydrochloric acid according to the reaction. 4 HCl (aq) + MnO_2 (s) ———> $2H_2O$ (l) + $MnCl_2$(aq) + Cl_2(g)	3
15	Calculate the number of moles in each of the following. (i) 392 g of sulphuric acid (ii) 44.8 litres of sulphur dioxide at N.T.P. (iii) 6.022×10^{22} molecules of oxygen (iv) 8g of calcium	4

Assertion And Reasoning

Directions: These questions consist of two statements, each printed as Assertion and Reason. While answering these questions, you are required to choose any one of the following four responses.

(a) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.

(b) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.

(c) If the Assertion is correct but Reason is incorrect.

(d) If both the Assertion and Reason are incorrect.

1	Assertion: Molarity of a solution in liquid state changes with temperature. Reason: The volume of a solution changes with change in temperature.	1

2 Assertion: One atomic mass unit is defined as one twelfth of the mass of one carbon – 12 atom.
Reason: Carbon-12 isotope is the most abundant isotope of carbon and has been chosen as standard.

1

3 Assertion: The empirical mass of ethene is half of its molecular mass.
Reason: The empirical formula represents the simplest whole number ratio of various atoms present in a compound

1

4 Assertion: The number of O atoms in 16 g of oxygen and 16 g of ozone is same.
Reason: Each of the species represent 1 g-atom of oxygen.

1