SOME BASIC CONCEPTS OF CHEMISTRY

Que.1. Mass of a body at rest is constant everywhere. But weight is not. Why?

[Marks :(2)]

Ans. Weight = mass x acceleration due to gravity(g). g is different at different places. So weight changes.

Que.2. Write the empirical formula of $C_6H_{12}O_6$.

[Marks :(1)]

Ans. CH_2O

Que.3. Sulphur forms two oxides - sulphur dioxide and sulphur trioxide. Which law of chemical combination is illustrated here?

[Marks :(1)]

Ans. Law of multiple proportions

Que.4. Which among the following concentration terms depends on temperature? (Molarity , Molality , Normality, Molefraction)

[Marks :(1)]

Ans. Molarity

Que.5. Which of the following contain more number of atoms ?

1)1g Ne 2)1g He 3) 1g Li 4) 1g Na

[Marks :(1)]

Ans. 1g He

Que.6. Find number of atoms in 52g of He?

[Marks :(1)]

Ans. 52/4 x 6.022x 1023

13 x 6.022 x 1023

Que.7. What is the number of hydrogen atoms in 1 mole of methane (CH4)?

[Marks :(1)]

a) 4

b) $4 \times 6.023 \times 10^{23}$

c) 6.023×10^{23}

d) 16

Ans. b) $4 \times 6.023 \times 10^{23}$

Que.8. Differentiate homogeneous and heterogeneous mixtures, Give one example each?

[Marks :(2)]

Ans. In a homogeneous mixture,the components completely mix with each other and its composition is uniform throughout.Eg. air

In heterogeneous mixture, the components not completely mix with each other and it is not uniform throughout. Eg milk

Que.9. The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is

[Marks :(1)]

(1)10

(2)20

(3)30

(4)40

Ans. (3)30

Que.10. 14g N2 reacts with 1g H2 to form ammonia. Which is limiting reagent ?

[Marks :(2)]

Ans. Hydrogen

Que.11. One gram mole of carbon =.....g

[Marks :(1)]

Ans. 12g

Que.12. what is meant by limitting reagent in a chemical reaction

[Marks :(2)]

Ans. The reactant which is consumed first in a chemical reaction is called limitting regent

Que.13. Find out the number of significant figures in 92.0340

[Marks :(1)]

Ans. 6

Que.14. Name the law of chemical combination illustrated by the pair of compounds, CO and CO_2 .

[Marks :(1)]

Ans. Law of Multiple proportion

Que.15. The no.of moles of solute present in 1 kg of solvent is

[Marks :(1)]

Ans. Molality

Que.16. Give the empirical formula of the following.

$C_6H_{12}O6$, C6H_6,CH_3COOH,$C_6H_6Cl_6$

[Marks :(2)]

Ans. CH_2O, CH,CH_2O, CHCl

Que.17. Mass of one mole of water is.....g

[Marks :(1)]

Ans. 18 gram

Que.18. Calculate the mass of carbon required to produce 100g of CO2 by combustion?

[Marks :(3)]

Ans. $C + O_2 \rightarrow CO_2$

12g 44g

xg 100g

x X 44 = 12 x 100

x = 1200/44= 27.27g

Que.19. Calculate the mass of CO_2 formed by the decomposition of 50g $CaCO_3$?

[Marks :(3)]

Ans. CaCO3→CaO + CO2

100g 44g

50g 22g

Que.20. Distinguish between empirical and molecular formulae?

[Marks :(3)]

Ans. Empirical formula is the simplest whole no ratio of different atoms in a molecule

Molecular formula is the exact number of different atoms in a molecule

Que.21. Find the molality of a 3M solution of NaOH having density of 1.1g/ml?

[Marks :(3)]

Ans. 3M solutin= 3moles in 1000ml

= 3X 40=120gNaOH in 1000ml solution

mass of solution= 1.1 X 1000= 1100g

mass of solvent= 1100-120=980g

molality=3/980 X 1000=3.06molal

Que.22. 10g H_2 and 50g N_2 are allowed to react to give NH_3.Identify the limiting reagent and calculate the mass of ammonia formed?

[Marks :(4)]

Ans. 3g Hydrogen + 14g Nitrogen →17g NH_3

1g Hydrogen + 14/3 g Nitrogren →17/3 g NH3

10g Hydrogen + 140g/3 nitrogen→170/3 g NH3

hence Limiting reagent= 140/3=46.6g

mass of NH3 formed= 170/3= 56.6g