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CHEMISTRY- XI / WORK SHEET

CHAPTER- 1 : SOME BASIC CONCEPTS OF CHEMISTRY

One Mark questions

1. Define Avogadro's law?
2. What is gram atomic mass? Give one example?
3. Define mole in terms of number?
4. How empirical formula and molecular formula of a substance are are related to each other?
5. State the SI units of volume, pressure and energy?
6. Define matter giving a few examples?
7. Define an element mentioning its various types?
8. Define molecule?
9. State the difference between 2H and H_2?
10. Nitrogen forms five oxides, N_2O, NO, N_2O_3, NO_2 and N_2O_5. Which law of chemical combination is illustrated by this data?

2 /3 Marks Questions

11. In what way study of chemistry will be helpful for the following:
    (a) In identifying chemical processes used in your daily life
    (b) In solving politico-cum-social problems for which inputs are required.
    (c) Preparing a good engineer
    (d) Planning of chemical industries in your district?
12. Convert the following
    (a) 25L to m^3
    (b) 25g L^{-1} to mg dL^{-1}
    (c) 1.54mm s^{-1} to mL s^{-2}

13. Define the following:
    (a) Average atomic mass
    (b) Mole
    (c) Molar mass
    (d) Unit factor
    (e) Molarity
14. Distinguish between a compound and a mixture?.
15. Give the molecular formula and the names of various oxides of nitrogen. Which law of chemical combination is followed?
16. State and explain the law of reciprocal proportions with suitable examples?
17. State and explain Gay Lussac's law of gaseous volume?
18. Explain the following terms:
    (a) Atomic mass
    (b) Gram molecular mass
    (c) Gram molecular volume
19. Define Molarity of a solution. What is molarity equation, what is its significance?
20. Which of the following has (i) minimum mass (ii) maximum mass
    (a) One gram atom of sodium
    (b) One a.m.u
    (c) One gram molecule of NH_3
    (d) 6.022×10^{21} molecules of CO_2

NUMERICAL

21.
    (i) When 4.2g of $NaHCO_3$ is added to a solution of CH_3COOH weighing 10.0g, it is observed that 2.2g CO_2 is released into atmosphere. The residue is found to weigh 12.0g. Show that three observations are in agreement with the law of conservation of mass.
    (ii) If 6.3g of $NaHCO_3$ are added to 15.0g CH_3COOH solution, the residue is found to weigh 18.0. What is the mass of CO_2 released in the reaction?
22. Carbon and oxygen are known to form two compounds. The carbon contents in one of these are 42.9% while in the other it is 27.3%. Show that this data is in agreement with the law of multiple proportions.
23. Pottassium bromide KBr contains 32.9% by mass potassium. If 6.40g of bromine reacts with 3.60g of potassium, calculate the number of moles of potassium which combines with bromine to form KBr.
24. Chlorophyll, the green colouring matter of plants responsible for photo synthesis contains 2.6% of Magnesium by mass. Calculate the number of magnesium atoms in 2.00g of chlorophyll.
25. A sample of Na OH weighing 0.38g is dissolved in water and the solution is made to 50.0ml in a volumetric flask. What is the molarity of the resultant solution?
    (a) How many moles of NaOH are contained in 27ml of 0.15m NaOH?

26. A sample of Na NO_3 weighing 0.38g is placed in a 50.0ml volumetric flask. The flask is then filled with water to mar on the neck. What is the molarity of the solution?
27. In a reaction vessel 0.184 g of NaOH is required to be added for completing the reaction. How many milliliters of 0.15 M NaOH solutions should be added for this requirement?
28. $Fe_2(SO_4)_3$ is empirical formula of a crystalline compound of iron. It is used in water and sewage treatment to aid in the removal of suspended impurities. Calculate the mass percentage of the iron, sulphur and the oxygen in this compound.
29. Calculate the cost of 2 moles of sugar if the cost price of sugar (C_{12} H_{12} O_{11}) is Rs: 20 per kg.
30.
    (a) Relative abundance of various isotopes of silicon is ^{28}Si = 92.25% , ^{29}Si = 4.65%, ^{30}Si = 3.10%. calculate the average atomic mass of Si?
    (b) Calculate the mass of
        (i) 336mg of iron(at. Mass of Fe = 56)
        (ii) 56L of CO_2 gas at STP.