

**Worksheet****Juniors****Mole Concept**

- Calculate the no. of molecules present in 350 CC of  $\text{NH}_3$  gas at 273 K and 1 atm pressure is  
(A)  $1.882 \times 10^{22}$  (B)  $18.82 \times 10^{22}$  (C)  $1.882 \times 10^{21}$  (D)  $18.82 \times 10^{21}$
- Number of neutrons present in 8g of methane gas, are  
(A)  $1.8066 \times 10^{24}$  (B)  $18.82 \times 10^{22}$  (C)  $1.8066 \times 10^{23}$  (D)  $1.5 \times 10^{23}$
- Number of atoms in 5.6 L of He gas at STP is  
(A)  $1.51 \times 10^{22}$  (B)  $1.51 \times 10^{23}$  (C)  $15.1 \times 10^{22}$  (D)  $1.51 \times 10^{23}$
- 1 mole of Glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) consists of  
(A) 6 gram molecules of  $\text{H}_2$  (B) 6 gram atoms of carbon  
(C) 12 gram atoms of Hydrogen (D) All of these
- Weight of a molecule of the compound  $\text{C}_{60}\text{H}_{22}$  is  
(A)  $1.09 \times 10^{-21}$  g (B)  $1.24 \times 10^{-21}$  (C)  $5.025 \times 10^{23}$ g (D)  $16.02 \times 10^{23}$ g
- Which of the following expressions is correct ( $n$  = no. of moles of the gas,  $N_A$  = Avogadro constant,  $m$  = mass of one molecule of the gas,  $N$  = no. of molecules of the gas) ?  
(A)  $n = mN_A$  (B)  $m = N_A$  (C)  $N = nN_A$  (D)  $m = mn/N_A$
- The volume of one mole of a gas at standard temperature and pressure is  
(A) 11.2 litres (B) 22.4 litres (C) 100 litres (D) 5.6 litres
- 2 moles of N atoms at NTP occupy a volume of  
(A) 11.2 L (B) 44.8 L (C) 22.4 L (D) 5.6 L
- Which of the following contains the greatest number of atoms,  
(A) 1g of butane ( $\text{C}_4\text{H}_{10}$ ) (B) 1g of Nitrogen ( $\text{N}_2$ )  
(C) 1g of silver (Ag) (D) 1g of water ( $\text{H}_2\text{O}$ )
- In which of the following pairs do 1g of each have an equal number of molecules?  
(A)  $\text{N}_2\text{O}$  and  $\text{CO}$  (B)  $\text{N}_2$  and  $\text{C}_3\text{O}_2$  (C)  $\text{N}_2$  &  $\text{CO}$  (D)  $\text{N}_2\text{O}$  and  $\text{CO}_2$
- The atomic weights of two elements A and B are 40 and 80 respectively. If  $x$  g of A contains  $Y$  atoms, how many atoms are present in  $2x$ g of B.  
(A)  $\frac{Y}{2}$  (B)  $\frac{Y}{4}$  (C)  $Y$  (D)  $2Y$
- Which of the following will contain same number of atoms as 20g of calcium.  
(A) 24 g magnesium (B) 12 g carbon  
(C) 8g of oxygen gas. (D) 16g of oxygen gas.
- Number of gram. atoms of oxygen present in 0.3 mole of  $(\text{COOH})_2 \cdot 2\text{H}_2\text{O}$  is  
(A) 9 (B) 18 (C) 0.9 (D) 1.8
- Number of oxygen atoms present in 1 gram of  $\text{CaCO}_3$  are  
(A)  $6 \times 10^{21}$  (B)  $1.8 \times 10^{22}$  (C)  $6 \times 10^{22}$  (D)  $8 \times 10^{22}$
- 200 CC of a gas measured at S.T.P has a mass of 0.268g. Molecular weight of the gas is  
(A) 16 (B) 2 (C) 28 (D) 30
- The percentage of oxygen is pure NaOH is  
(A) 40 (B) 80 (C) 120 (D) 160

17. The weight of gaseous mixture containing  $6.02 \times 10^{23}$  molecules of  $N_2$  and  $3.01 \times 10^{23}$  molecules of  $SO_2$  is  
(A) 46 g                      (B) 92 g                      (C) 60 g                      (D) 30 g
18. Rearrange the following (I to IV) in the order of increasing masses and choose the correct answer from (a), (b), (c) and (d) (Atomic mass : N = 14, O = 16, Cu = 63).  
I. 1 molecule of oxygen  
II. 1 atom of nitrogen  
III.  $1 \times 10^{-10}$  g atomic weight of oxygen  
IV.  $1 \times 10^{-10}$  g atomic weight of copper  
(A) II < I < III < IV      (B) IV < III < II < I      (C) II < III < I < IV      (D) III < IV < I < II
19. The number of gram molecules of oxygen in  $6.02 \times 10^{24}$  CO molecules is  
(A) 10 g molecules      (B) 5 g molecules      (C) 1 g molecules      (D) 0.5 g molecules
20. The weight of  $1 \times 10^{22}$  molecules of  $CuSO_4 \cdot 5H_2O$  is  
(A) 41.59 g                      (B) 415.9 g                      (C) 4.519 g                      (D) None of these

**Answers**

- |     |   |     |   |     |   |     |   |     |   |
|-----|---|-----|---|-----|---|-----|---|-----|---|
| 1.  | A | 2.  | A | 3.  | B | 4.  | D | 5.  | B |
| 6.  | C | 7.  | B | 8.  | C | 9.  | A | 10. | D |
| 11. | C | 12. | D | 13. | B | 14. | B | 15. | D |
| 16. | A | 17. | C | 18. | A | 19. | B | 20. | C |