



# CHEMISTRY NMDCAT

## PMC TOPIC WISE TEST (UNIT-1)

### TOPICS:-

✓ **Introduction of Fundamental Concepts of Chemistry**

- Q.1** The number of oxygen atoms in 4.4g of  $\text{CO}_2$  is  
A.  $N_A$  B.  $N_A/10$   
C.  $2N_A$  D.  $N_A/5$
- Q.2** Number of electrons in 3.5g of nitride ion ( $\text{N}^{3-}$ ) is  
A.  $3.2N_A$  B.  $2N_A$   
C.  $2.5N_A$  D.  $1.25N_A$
- Q.3** 1gram atom of carbon has mass of  
A. 12amu B. 12g  
C. 18g D. 6g
- Q.4** Avogadro's number of atoms are present in  
A. 3.2g  $\text{CH}_4$  B. 10g  $\text{NH}_3$   
C. 2g He D. 32g  $\text{O}_2$
- Q.5** The number of molecules in 11g of  $\text{CO}_2$  is  
A.  $6.02 \times 10^{23}$  B.  $3.01 \times 10^{23}$   
C.  $1.505 \times 10^{23}$  D.  $6.02 \times 10^{24}$
- Q.6** 1 amu is equal to  
A.  $1.661 \times 10^{-24}$ kg B.  $1.661 \times 10^{-21}$ g  
C.  $6.02 \times 10^{-23}$ g D.  $1.661 \times 10^{-21}$ mg
- Q.7** In combustion analysis,  $\text{H}_2\text{O}$  vapours are absorbed by  
A. 50% KOH B.  $\text{Mg}(\text{ClO}_4)_2$   
C. NaOH D.  $\text{MgCl}_2$
- Q.8** 11g a gas occupies  $5.6\text{dm}^3$  at STP. The gas is  
A. Ne B. He  
C.  $\text{CH}_4$  D.  $\text{N}_2\text{O}$
- Q.9** Which type of relationship can be studied with the help of balanced chemical equation  
A. Mass-volume B. Mole-volume  
C. Mole-mole D. All relations can be studied
- Q.10** The mass of an atom compared with mass of one atom of C-12 is called  
A. One mole B. Gram atomic mass  
C. Atomic number D. Relative atomic mass
- Q.11** 35.5amu is \_\_\_\_\_ of chlorine  
A. Nucleon number B. Relative molecular mass  
C. Relative ionic mass D. Relative atomic mass
- Q.12** All reactant are converted to product and no side reaction takes place are basic assumption while doing  
A. Limiting reactant B. Theoretical yield  
C. Stoichiometry D. All of above
- Q.13** 18g of water is produced if 2g of  $\text{H}_2$  react with \_\_\_\_\_ of oxygen  
A. 8g B. 16g  
C. 24g D. 32g



- Q.14 %age of oxygen in combustion analysis is calculated by the formula  
A. (%age of C +%age of H)–100  
B. (%age of C +%age of H) + 100  
C. (%age of C +%age of H) 100  
D. 100 – (%age of C +%age of H)
- Q.15 6.3g of  $\text{HNO}_3$  has mass of nitrate ions  
A. 6.2g  
B. 62g  
C. 0.62g  
D. 3.1g
- Q.16 9g of ice has number of covalent bonds  
A.  $6.02 \times 10^{23}$   
B.  $3.01 \times 10^{23}$   
C.  $1.661 \times 10^{-23}$   
D.  $1.505 \times 10^{23}$
- Q.17 A well known ideal gas is enclosed in a container having volume  $5603\text{cm}^3$  at STP. Its mass comes out to be 16g. The unknown gas is  
A.  $\text{O}_2$   
B.  $\text{CH}_4$   
C.  $\text{SO}_2$   
D.  $\text{CO}_2$
- Q.18 The efficiency of chemical reaction can be checked by calculating  
A. Amount of limiting reactant  
B. Amount of product formed  
C. Amount of reactant left un-used  
D. Amount of reactant in excess
- Q.19 Actual yield is less than theoretical yield because of  
A. In-experience worker  
B. Some competing side reaction  
C. Lack of proper technique  
D. All of the above
- Q.20 If 24g of organic compound is burnt in combustion tube which gives 22g of  $\text{CO}_2$ . %age of carbon is  
A. 50%  
B. 20%  
C. 65%  
D. 25%
- Q.21 Which of the following term is correct for  $\text{H} = 1.008\text{amu}$   
A. Relative atomic mass  
B. Average atomic mass  
C. Fractional atomic mass  
D. All of these
- Q.22 10g of  $\text{CaO}$  is produced if 25g of  $\text{CaCO}_3$  is roasted. Find %age yield  
A. 40%  
B. 71%  
C. 75%  
D. 33%
- Q.23 Under standard conditions, stoichiometry can be applied to  
A.  $2\text{H}_2\text{O} \longrightarrow 2\text{H}_2 + \text{O}_2$   
B.  $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$   
C.  $\text{PCl}_5 \rightleftharpoons \text{PCl}_3 + \text{Cl}_2$   
D.  $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$
- Q.24 14g of Fe react with how much mass of  $\text{O}_2$  to produce  $\text{Fe}_2\text{O}_3$   
A. 16g  
B. 32g  
C. 12g  
D. 6g
- Q.25 5g of C and 10g of Mg contain equal number of  
A. Electrons  
B. Atoms  
C. Neutrons  
D. Molecules
- Q.26 Volume occupied by 51g of  $\text{NH}_3$  at STP is  
A.  $60\text{dm}^3$   
B.  $79\text{dm}^3$   
C.  $89\text{dm}^3$   
D.  $67\text{dm}^3$
- Q.27 How many moles of  $\text{KClO}_3$  are required to prepare 6 moles of oxygen  
 $2\text{KClO}_3 \longrightarrow 2\text{KCl} + 3\text{O}_2$   
A. 3.17mol



- Q.28 The number of moles of  $\text{SO}_2$  which contain 16g of oxygen  
A. 0.25mol  
B. 0.5mol  
C. 0.75mol  
D. 1 mol
- Q.29 What volume of 0.5g of  $\text{H}_2$ , 16g of  $\text{O}_2$  and 7.0g of  $\text{N}_2$  is present in mixture at STP  
A. 2.24dm<sup>3</sup>  
B. 22.4dm<sup>3</sup>  
C. 0.224dm<sup>3</sup>  
D. 11.2dm<sup>3</sup>
- Q.30 A balanced chemical equation does not tell about  
A. Molar ratios  
B. Direction of Reaction  
C. Feasibility of reaction  
D. All of these
- Q.31  $\text{CH}_2\text{O}$  is empirical formula for  
A. Maltose, Acetic acid  
B. Sucrose, lactic acid  
C. Methanol, Ethanal  
D. Methanal, lactic acid
- Q.32 Choose the correct relation for percentage yield  
A.  $\frac{\text{Actual yield}}{\text{Theoretical yield}} \times 100$   
B.  $\frac{\text{Theoretical yield}}{\text{Actual yield}} \times 100$   
C.  $\frac{\text{Actual yield}}{\text{Theoretical yield}} \times 10^3$   
D.  $\frac{\% \text{age of excess reactant}}{\% \text{age limiting reactant}} \times 100$
- Q.33 A balanced chemical equation always contain equal number of \_\_\_\_\_ of reactant and product  
A. Atoms  
B. Molecules  
C. Mole  
D. Volume
- Q.34 While determining molecular formula, the simple multiple 'n' is unity for  
A.  $\text{C}_6\text{H}_6\text{O}_2$   
B.  $\text{C}_2\text{H}_4\text{O}_2$   
C.  $\text{C}_6\text{H}_{12}\text{O}_6$   
D.  $\text{C}_3\text{H}_4\text{O}_3$
- Q.35 Mass of one g ion of  $\text{CO}_3^{2-}$  is  
A. 30g  
B. 60g  
C. 15g  
D. 75g
- Q.36 A mole of any substance is related to  
A. Number of particles  
B. Volume of gaseous substance  
C. Mass of a substance  
D. All of these
- Q.37 Avogadro's number is the number of molecules present in  
A. Gram molecular mass  
B. 1 dm<sup>3</sup> of  $\text{CH}_4$   
C. 1g of atom  
D. 1g of formula mass
- Q.38 Sole product in combustion analysis are  
A.  $\text{CO}$  and  $\text{H}_2\text{O}$   
B.  $\text{C} + \text{CO} + \text{H}_2\text{O}$   
C.  $\text{C} + \text{CO}_2 + \text{H}_2\text{O}$   
D.  $\text{CO}_2 + \text{H}_2\text{O}$
- Q.39  $3 \times 10^{-21}$  moles of an amino acid having molecular mass 200g mol<sup>-1</sup> would have \_\_\_\_\_ molecules  
A. 200  
B. 1800  
C. 100  
D. 3600
- Q.40 A polymer of simplest formula  $\text{CH}_2$  has molar mass of 28000g mol<sup>-1</sup> its molecular formula will be  
A. 100 times that of its E.F  
B. 500 times of its E.F  
C. 200 times of its E.F  
D. 2000 times of its E.F

- Q.41  $H_2$  burns in  $Cl_2$  to produce  $HCl$ . The ratio of masses of reactants in chemical reaction  $H_2 + Cl_2 \longrightarrow 2HCl$  is
- A. 2 : 35.5  
B. 1 : 35.5  
C. 1 : 71  
D. 2 : 70
- Q.42 Which of the following has same number of molecules as present in 11g of  $CO_2$
- A. 4g of  $O_2$   
B. 4.5g of  $H_2O$   
C. 4g of O  
D.  $\frac{1}{4}$  moles of  $NaCl$
- Q.43 1 mole of  $CH_3OH$  and 1 mol of  $C_2H_5OH$  have equal number of
- A. C - atoms  
B. O - atoms  
C. H-atoms  
D. Electrons
- Q.44 Which one will produce largest number of negatively charged ions in case of 100% ionization of 1 mole of
- A.  $Na_2SO_4$   
B.  $NaCl$   
C.  $CaCl_2$   
D.  $AlCl_3$
- Q.45 A compound has 50% of A (molecular mass = 20g / mol) and 50% of B (molecular mass = 10g / mol). Empirical formula is
- A.  $A_2B$   
B.  $A_2B_2$   
C.  $AB_2$   
D.  $A_2B_3$
- Q.46 1 mole of each of  $N_2O$  and  $CO_2$  has same number of
- A. Molecules  
B. Atoms  
C. Electrons  
D. All of these
- Q.47 Atomic mass unit is
- A.  $\frac{1}{10}$  th of mass of one C-atom  
B.  $\frac{1}{14}$  th of mass of one C-atom  
C.  $\frac{1}{12}$  th of mass of one C-atom  
D.  $\frac{1}{6}$  th of mass of one C-atom
- Q.48 The number of atoms present in 0.1 mole of oxygen gas are
- A.  $6.02 \times 10^{22}$   
B.  $2 \times 6.02 \times 10^{22}$   
C.  $3.01 \times 10^{23}$   
D.  $9.03 \times 10^{22}$
- Q.49 The maximum amount of the product that can be produced by a given amount of a reactant, according to balanced chemical equation is called
- A. Actual yield  
B. Theoretical yield  
C. %age yield  
D. Yield
- Q.50 Which of the following compounds does not show same molecular and empirical formula?
- A.  $(CHO)_2$   
B.  $HCHO$   
C.  $C_2H_5OH$   
D.  $HCOOH$

# CHEMISTRY CTS-1

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|--------|--------|--------|--------|--------|
| 1 - D  | 11 - D | 21 - D | 31 - D | 41 - B |
| 2 - C  | 12 - D | 22 - B | 32 - A | 42 - B |
| 3 - B  | 13 - B | 23 - A | 33 - A | 43 - B |
| 4 - A  | 14 - D | 24 - D | 34 - D | 44 - D |
| 5 - C  | 15 - A | 25 - B | 35 - B | 45 - C |
| 6 - D  | 16 - A | 26 - D | 36 - D | 46 - D |
| 7 - B  | 17 - C | 27 - B | 37 - A | 47 - C |
| 8 - D  | 18 - B | 28 - B | 38 - D | 48 - B |
| 9 - D  | 19 - D | 29 - B | 39 - B | 49 - B |
| 10 - D | 20 - D | 30 - C | 40 - D | 50 - A |