

**Test / Exam Name: Chemistry - Some Basic Concepts Of Chemistry**
**Standard: 11th Science**
**Subject: Chemistry**
**Student Name:** ..... **Roll No.:** .....

**Questions: 26** **Time: 01:45 hr:min** **Marks: 50**
**Instructions**

- Make sure to write in the point formation. You handwriting should be neat and clean
- New section on new page
- Honesty is the best policy.

**SECTION-A**

- Q1.** If the density of a solution is  $3.12\text{g mL}^{-1}$ , the mass of  $1.5\text{mL}$  solution in significant figures is \_\_\_\_\_.  
**A** 4.7g **B**  $4680 \times 10^{-3}\text{g}$  **C** 4.680g **D** 46.80g
- Q2.** The empirical formula and molecular mass of a compound are  $\text{CH}_2\text{O}$  and 180g respectively. What will be the molecular formula of the compound?  
**A**  $\text{C}_6\text{H}_{18}\text{O}_3$  **B**  $\text{CH}_2\text{O}$   
**C**  $\text{C}_9\text{H}_{12}\text{O}_6$  **D**  $\text{C}_2\text{H}_4\text{O}_2$
- Q3.** Which of the following subatomic particle is lightest?  
**A** Neutron **B** Alpha particle **C** Electron **D** Deuteron
- Q4.**  $1\text{u} = ?$   
**A** The mass of one atom of the carbon -12 isotope **B**  $\frac{1}{12}$  the mass of one atom of the carbon -16 isotope  
**C**  $\frac{1}{12}$  the mass of one atom of the carbon -12 isotope **D** The mass of one atom of the carbon -16 isotope
- Q5.** Which is not one of the laws of chemical combinations?  
**A** Law of multiple proportion. **B** Law of conservation of mass.  
**C** Law of conservation of energy. **D** Law of definite proportion.
- Q6.** In the following reaction,  
 $\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$   
 2 moles of  $\text{MnO}_2$  react with 4 moles of  $\text{HCl}$  to form  $11.2\text{L}$   $\text{Cl}_2$  at STP.  
 Thus, per cent yield of  $\text{Cl}_2$  is:  
**A** 25% **B** 50% **C** 100% **D** 75%
- Q7.** \_\_\_\_\_ is defined as the number of carbon atoms in 1 mole or in exactly 12g of the carbon-12 isotope.
- Q8.** Reliability of measurement is expressed in terms of accuracy and \_\_\_\_\_.
- Q9.** The mass of 10 molecules of naphthalene ( $\text{C}_{10}\text{H}_8$ ) is equal to \_\_\_\_\_.
- Q10.** What is AZT? Mention its use in medical science.
- Q11.** Classify the following as pure substances and mixtures: air, glucose, gold, sodium and milk.
- Q12.** What is S.I. unit of density?
- Q13.** How many cm are there in 1 pm?

**SECTION-B**

- Q14.** What will be the molarity of a solution. Which contains 5.58g of  $\text{NaCl}$ (s) per 500mL?
- Q15.** Calculate the number of grams of oxygen in  $0.10\text{mol}$  of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
- Q16.** Classify the following into elements, compounds and mixtures: water, tea, silver, steel, carbon dioxide and platinum.
- Q17.** Write the relationship between empirical formula and molecular formula.
- Q18.** What is the mass percent of carbon in carbon dioxide?
- Q19.** What is difference between molecules and compounds? Give examples of each.
- Q20.** Hydrogen gas is prepared in the laboratory by reacting dilute  $\text{HCl}$  with granulated zinc. Following reaction takes place.  
 $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$   
 Calculate the volume of hydrogen gas liberated at STP when 32.65g of zinc reacts with  $\text{HCl}$ . 1 mol of a gas occupies 22.7L volume at STP; atomic mass of  $\text{Zn} = 65.3\text{u}$ .
- Q21.** 56kg of  $\text{N}_2$ (g) and 10kg of  $\text{H}_2$ (g) are mixed to produce  $\text{NH}_3$ (g). Calculate the number of moles of ammonia gas formed.  
 (Atomic mass/ g  $\text{mol}^{-1}$ :  $\text{N} = 14$ ,  $\text{H} = 1$ )
- Q22.** A black dot used as a full stop at the end of a sentence has a mass of about one attogram. Assuming that the dot is made up of carbon, calculate the approximate number of carbon atoms present in the dot?
- Q23.** If 2L of  $\text{N}_2$  is mixed with 2L of  $\text{H}_2$  at a constant temperature and pressure, then what will be the volume of  $\text{NH}_3$  formed?

**SECTION-C**
**Q24.** Match Column I with Column II.

S. No	Column I	S. No	Column II
1.	88g of $\text{CO}_2$	(i)	0.25mol
2.	$6.022 \times 10^{23}$ molecules of $\text{H}_2\text{O}$	(ii)	2mol
3.	5.6 litres of $\text{O}_2$ at STP	(iii)	1mol
4.	96g of $\text{O}_2$	(iv)	$6.022 \times 10^{23}$ molecules
5.	1mol of any gas	(v)	3mol

**Q25.** Calculate:

- Mass in grams of 5.8mol of  $\text{N}_2\text{O}$ .
- Number of moles in 8.0g of  $\text{O}_2$ .
- Molar mass of 11.2L at STP weighs 8.5g.

**Q26.**

- A sample of salt has the following percentage composition  
 $\text{Fe} = 36.76\%$ ,  $\text{S} = 21.11\%$  and  $\text{O} = 42.14\%$   
 Calculate the empirical formula of the compound
- What happens if the compound is heated? Write the balanced chemical equation.