

NAME:		ROLL NO:		TIME:	30: MIN
SUB:	Chemistry	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 4 (Stoichiometry)	T. MARKS	27	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x27=27)

1. Which one of the following statements is incorrect?

- (A) One mole of nitrogen gas contains Avogadro's number of molecules
- (B) One mole of ozone gas contains Avogadro's number of molecules
- (C) One mole of ozone contains Avogadro's number of O atoms
- (D) One mole of hydrogen gas contains Avogadro's number of molecules

2. Which one of the following has greatest mass?

- (A) 0.5 mol of N₂
- (B) 0.5 mol of NH₃
- (C) 0.5 mol of He
- (D) 0.5 mol of CO₂

3. Which one of the following gases will have greatest volume at STP?

- (A) 22 g of CO₂
- (B) 88 g of N₂O
- (C) 28 g of CO
- (D) 28 g of N₂

4. Which one of the following contains same number of particles as present in 12 g of carbon?

- (A) 28 g of iron (Atomic mass of Fe = 56)
- (B) 48 g of magnesium (Atomic mass of Mg = 24)
- (C) 32 g of S₈ molecules (Atomic mass S = 32)
- (D) 40 g of carbon monoxide (molar mass of CO = 28)

5. Volume at S.T.P of 22 g of CO₂ is same as that of:

- (A) 2 g of hydrogen
- (B) 8.5 g of NH₃
- (C) 64 g of gaseous SO₂
- (D) 7 g of CO

6. 4.0 g of NaOH (molar mass 40 g mol⁻¹) contains same number of sodium ions as are present in:

- (A) 10.6 g of Na₂CO₃, (molar mass 106)
- (B) 58.5 g of NaCl (molar mass 58.5)
- (C) 76 g Na₂SO₄ (formula mass 142)
- (D) 85 g of NaNO₃ (molar mass 85)

7. A container holds 0.5 moles of an ideal gas at STP. What is the volume of the gas in dm³?

- (A) 11.2 dm³
- (B) 22.4 dm³
- (C) 44.8 dm³
- (D) 12.2 dm³

8. A solution contains 4.0 g of sodium hydroxide (NaOH, molar mass = 40.0 g mol⁻¹) in 250 cm³ of solution. What is the molar concentration of this solution?

- (A) 0.10 mol dm⁻³
- (B) 0.20 mol dm⁻³
- (C) 0.40 mol dm⁻³
- (D) 0.80 mol dm⁻³

9. A solution contains 10.0 g of an unknown solute in 250 cm³ of solution. If the molar concentration of the solution is 0.20 mol dm⁻³, what is the molar mass of the solute?

- (A) 50 g mol⁻¹
- (B) 100 g mol⁻¹
- (C) 200 g mol⁻¹
- (D) 400 g mol⁻¹

10. A sample of nitrogen gas (N₂, molar mass = 28.0 g mol⁻¹) has a mass of 14.0 g. How many nitrogen atoms are present in this sample?

- (A) 3.01 x 10²³ atoms
- (B) 6.02 x 10²³ atoms
- (C) 1.20 x 10²⁴ atoms
- (D) 2.40 x 10²⁴ atoms

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- A gas has density of 1.43 gdm^{-3} at STP. What is the molar mass of the gas? (Molar volume at STP = $22.4 \text{ dm}^3 \text{ mol}^{-1}$)
 (A) 14.3 g mol^{-1} (B) 22.4 g mol^{-1} (C) 32.0 g mol^{-1} (D) 64.0 g mol^{-1}
- A gas has a density of 1.96 gdm^{-3} at STP (0°C and 1.00 atm). What is its molecular mass? (Molar volume at STP = $22.4 \text{ dm}^3 \text{ mol}^{-1}$)
 (A) 11.2 g mol^{-1} (B) 22.4 g mol^{-1} (C) 44.0 g mol^{-1} (D) 88.0 g mol^{-1}
- How many molecules are there in one mole of H_2O ?
 (A) 6.023×10^{19} (B) 6.023×10^{23} (C) 1.084×10^{18} (D) None of these
- A flask contains 500 cm^3 of SO_2 at STP. The flask contains
 (A) 40 g (B) 100 g (C) 50 g (D) 1.427 g
- A necklace has 6 g of diamond in it. What are the numbers of atoms in it?
 (A) 6.02×10^{23} (B) 12.04×10^{23} (C) 1.003×10^{23} (D) 3.01×10^{23}
- What is the mass of aluminum in 204 g of the aluminum oxide, Al_2O_3 ?
 (A) 26 g (B) 27 g (C) 54 g (D) 108 g
- The reactant which is consumed earlier and gives least quantity of product is called.
 (A) Reactant in excess (B) Stoichiometry
 (C) Limiting reactant (D) Stoichiometric amount
- Which one the following compounds contains the highest percentage by mass of nitrogen?
 (A) NH_3 (B) N_2H_4 (C) NO (D) $\text{NH}_4 \text{ OH}$
- Vitamin-A has a molecular formula $\text{C}_{20}\text{H}_{30}\text{O}$. The number of vitamin-A molecules in 500 mg of its capsule will be:
 (A) 6.02×10^{23} (B) 1.05×10^{23} (C) 3.01×10^{22} (D) 3.01×10^{23}
- When one mole of each of the following is completely burnt in oxygen, which will give the largest mass of CO_2 ?
 (A) Carbon Monoxide (B) Diamond (C) Ethane (D) Methane
- One mole of ethanol and one mole of ethane have an equal:
 (A) Mass (B) Number of Atoms (C) Number of electrons (D) Number of molecules
- Methane reacts with steam to form H_2 and CO as shown below.

$$\text{CH}_{4(g)} + \text{H}_2\text{O}_{(g)} \rightarrow \text{CO}_{(g)} + 3\text{H}_{2(g)}$$
 What volume of H_2 can be obtained from 100 cm^3 of methane at the standard temperature and pressure?
 (A) 300 cm^3 (B) 200 cm^3 (C) 150 cm^3 (D) 100 cm^3
- The Avogadro's constant is the number of:
 (A) Atoms in 1g of Helium
 (B) Molecules in 35.5g of Chlorine
 (C) Electrons needed to deposit 24g of Mg
 (D) Atoms in 24g of Mg

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24. How many moles of oxygen are needed for the complete combustion of two moles of butane?

- (A) 2 (B) 8 (C) 10 (D) 13

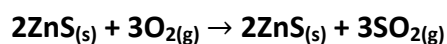
25. If four moles of SO₂ are oxidized to SO₃, how many moles of oxygen molecules are required?

- (A) 0.5 (B) 1.0 (C) 1.5 (D) 2.0

26. Which of the following statements is incorrect?

- (A) 12 g of carbon gas contains one mole of atoms
 (B) 28 g of Nitrogen gas contains one mole of molecules of N₂
 (C) 1 dm³ of 1.0 mole dm⁻³ solution of NaCl contains one mole of chloride ions
 (D) None of these

27. What volume of SO₂ at room temperature and pressure is produced on heating 9.7g of Zinc Sulphide (ZnS) if reaction takes place as follows;



- (A) 1.2 dm³ (B) 2.4 dm³ (C) 3.6 dm³ (D) 4.8 dm³



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Answer Key

1	C	2	D	3	D	4	D
5	B	6	A	7	A	8	C
9	C	10	B	11	C	12	C
13	B	14	D	15	D	16	D
17	C	18	B	19	B	20	C
21	D	22	A	23	D	24	D
25	D	26	D	27	B		