



# CHEMISTRY

## BOOKS - UNITED BOOK HOUSE

### CHEMICAL CALCULATION

#### Exercise

1. Who discovered the law of conservation of mass?

A. Avogadro

B. Lavoiser

C. Dalton

D. Gay Lussac's

**Answer:**



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2. Molecular weight of  $H_2SO_4$  is?

A. 89

B. 50

C. 98

D. 100

**Answer:**



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**3. number of moles = ?**

A.  $mass \times mo \leq \underline{carweight}$

B.  $\frac{mass}{mo} \leq \underline{carweight}$

C.  $mass \times a \rightarrow micweight$

D.  $\frac{mass}{a} \rightarrow micweight$

**Answer:**



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4. What is molar volume of a gas?

A. 2.24 lit

B. 22.4 lit

C. 224 lit

D. 22.4 c.c

**Answer:**



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5. What is the S.I. unit of vapour density-

A.  $kg / m^3$

B.  $gm / cm^3$

C. mole

D. unitless

**Answer:**



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**6.** The number of moles in 1.7 gm of ammonia is-

A. 1

B. 0.5

C. 0.1

D. 1.7

**Answer:**



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7.8 gm H<sub>2</sub> = \_\_\_\_\_ moles-

A. 1

B. 2

C. 3

D. 4

**Answer:**



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8. Which of the following contains least number of molecules?

A. 1.12  $SO_2$  at STP

B. 1 gm mole  $SO_2$

C. 32 g  $SO_2$

D.  $4 \times 10^{22}$  molecules of  $SO_2$

**Answer:**





9. No. of atoms present in 3.7 g Mole of nitrogen is-

A.  $4.45 \times 10^{24}$

B.  $6.023 \times 10^{24}$

C.  $1.204 \times 10^{24}$

D.  $3.023 \times 10^{23}$

**Answer:**



10. Volume of  $CO_2$  produced at STP from 1 mole of calcium carbonate is-

A. 22.4 L

B. 11.2 L

C. 5.6 L

D. 11L

**Answer:**



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11. Who discovered the law of conservation of mass?

A. Cannizarro

B. Lavoisier

C. Dulton

D. Gelusac

**Answer:**



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12. State the conservation of mass and energy.



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13. What is vapour density?



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14. Why law of conservation of mass is not applicable to nuclear reactions?



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**15.** What is the volume of 1 gm of hydrogen at STP?



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**16.** Give the difference between normal density of a gas and vapour density?



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17. Calculate the weight of oxygen obtained on heating 24.5 gm  $KClO_3$ .



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18. Find out molecular weight of sugar ( $C_{12}H_{22}O_{11}$ ).



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19. Define mole of a substance.



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20. State the conservation of mass and energy.



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21. What is the relation between molecular weight and vapour density.



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**22.** Why law of conservation of mass is not applicable to nuclear reactions?



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**23.** The weight of 1 litre of a gas at STP is 2.334 g determine the gram molecular weight of the gas?



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**24.** Prove that at STP the molar volume of any gas is 22.4 lit.



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**25.** Prove that all the common elementary gases are diatomic.



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26. What is the relation between molecular weight and vapour density.



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27. How many grams of  $H_2$  would be produced, if 130 g of zinc reacts with an excess of dilute of  $H_2SO_4$  (Zn-65)



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**28.** What is the number of  $H_2$  atom in 0.9 gm of water? (H = 1, O = 16)



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**29.** What is the volume of 4 gm of sulphur dioxide gas at standard temperature and pressure? (S = 32, O = 16)



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30. How many grams of  $HgO$  is to be heated to obtain the same weight of oxygen obtained by heating 50 gms of  $KClO_3$ ? (K = 39, Hg = 200, Cl = 35.5)



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31. How many gram of  $CaCO_3$  will react with excess of dilute  $HCl$  to produce 66 gm of  $CO_2$ ? (Ca = 40, C = 12, O = 16)



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**32.** What is the quantity of iron required to produced 5.6 L of hydrogen at STP by passing steam over p red not iron (Fe = 56)



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**33.** What is the relation between molecular weight and vapur density.



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34. How many gram of  $CO_2$  would be required to be passed through a tank of lime water to produce 100 grams of  $CaCO_3$ ? (Ca= 40, C = 12, O= 16).



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35. How many moles of potassium chlorate is required to produce 4.8 gm of oxygen?



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**36.** How much  $NH_4Cl$  is needed to prepare to litres ammonia at STP?



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**37.** How many Litres of oxygen is needed to burn completely 2.2 g propane ( $C_2H_6$ )?



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**Example**

1. What is the mass of 5 mole  $NH_3$ .



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2. What is the relation between molecular weight and vapour density.



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3. Write the equation relating energy with mass.







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4. Which physical quantity has the unit 'mol'?



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5. Name a gaseous element whose molecule and atom are identical.



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6. Which Scientist is regarded as the father of atomic theory?



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7. What is the mass of 1 gm atom of oxygen?



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8. What is the number of oxygen molecules in 10 mole of oxygen molecule?



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9. How many grams of hydrogen will contain  $12.046 \times 10^{23}$  molecules?



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