



Choose the correct answer**D-1 Which of the following is not a mixture?**

- a) Aluminum b) Air c) Salad d) Seven up

D-2 What is the SI unit for amount of substance?

- a) Mole b) Milligram c) Gram d) Kilogram

D-3 How many centimeters are there in 15 decimeters?

- a) 150 cm b) 1.5 cm c) 0.15 cm d) 15 cm

D-4 What is the symbol of the element that has 28 neutrons and a mass number of 52?

- a) Ni b) Te c) Hg d) Cr

D-5 How many electrons are in ${}^{52}_{24}\text{Cr}^{3+}$?

- a) 24 b) 21 c) 28 d) 76

D-6 Which of the following elements is a metal?

- a) Cl b) Kr c) C d) Mn

D-7 Which two of the following pair of atoms are isotopes?

- a) ${}^{45}_{21}\text{Sc}$ and ${}^{45}_{23}\text{V}$ b) ${}^{40}_{20}\text{Ca}$ and ${}^{40}_{21}\text{Sc}$ c) ${}^{38}_{18}\text{Ar}$ and ${}^{39}_{18}\text{Ar}$ d) ${}^{39}_{19}\text{K}$ and ${}^{39}_{18}\text{Ar}$

D-8 Which three elements have similar chemical properties?

- a) Cu, Cd, Tl b) Al, Si, P c) Li, Be, B d) Ni, Pt, Pd

D-9 Which of the following could be an empirical formula?

- a) C_2H_4 b) C_4H_7 c) C_4H_8 d) C_2H_6

D-10 An example of monatomic ion is

- a) HPO_4^{2-} b) PO_4 c) P^{3-} d) PO_4^{3-}

D-11 How many moles are in 4 g of carbon?

- a) 1 mole b) 4 mole c) 0.67 mole d) 0.33 mole

D-12 How many atoms are there in 5.4 g of boron?

- a) 2.96×10^{23} atoms b) 6.022×10^{23} atoms c) 1.41×10^{23} atoms d) 1.501×10^{23} atoms

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D-13 Calculate the average atomic mass of sulfur which consists of three stable isotopes: sulfur-32 (94.93%), sulfur-33 (0.78%) and sulfur-34 (4.29%) which have atomic masses of 31.97 amu, 32.97 amu and 33.97 respectively.

- a) 31.10 amu b) 33.34 amu c) 35.83 amu d) 32.06 amu

D-14 What is the percent composition of sulfur in $\text{Fe}_2(\text{SO}_4)_3$?

- a) 20 % b) 9.5% c) 24% d) 36%

D-15 A compound is composed of 31.86% carbon, 5.31% hydrogen and 62.84% chlorine by mass. Determine the empirical formula of this compound.

- a) $\text{C}_3\text{H}_5\text{Cl}$ b) $\text{C}_2\text{H}_3\text{Cl}$ c) CH_2Cl d) $\text{C}_3\text{H}_6\text{Cl}_2$

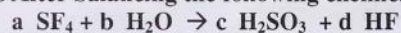
D-16 The molar mass of the compound above found to be 226 g/mole. What is its molecular formula?

- a) $\text{C}_6\text{H}_{12}\text{Cl}_4$ b) $\text{C}_7\text{H}_3\text{Cl}_4$ c) $\text{C}_5\text{H}_{24}\text{Cl}_4$ d) $\text{C}_3\text{H}_{12}\text{Cl}_5$

D-17 The process in which one or more substances are changed into one or more new substances is called:

- a) Chemical reaction b) chemical symbol c) dilution d) mole

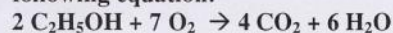
D-18 After balancing the following chemical equation:



The sum of a, b, c and d (a+b+c+d) is:

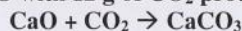
- a) 9 b) 11 c) 8 d) 12

D-19 How many grams of water is produced by burning 115 g of $\text{C}_2\text{H}_5\text{OH}$ according to the following equation:



- a) 92 g b) 135 g c) 108 g d) 20 g

D-20 The reaction of 10 g CaO with 12 g of CO_2 produced CaCO_3 according to the following equation:



The limiting reagent is:

- a) CaO b) CO_2 c) CaO and CO_2 d) CaCO_3

D-21 What is the excess reagent in the previous question (question 20)?

- a) CaO b) CO_2 c) CaO and CO_2 d) CaCO_3

D-22 What is the percent yield of CaCO_3 in question (20) if 9.85 g of CaCO_3 are actually obtained?

- a) 62.9 % b) 66 % c) 109 % d) 55%

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D-23 What mass of NaCl is needed to prepare 1 L of 0.8 M sodium ion solution?

- a) 18.5 g b) 23.25 g c) 46.8 g d) 32.3 g

D-24 What volume of 0.5M NaOH solution would you need to prepare 700 mL of 0.1 M NaOH solution?

- a) 140 mL b) 0.14 mL c) 0.014 mL d) 1.4 mL

D-25 1 L of a 0.5 M NaCl solution is mixed with 4 L of 0.1 M NaCl. What is the concentration of NaCl in the final solution?

- a) 0.317 M b) 0.6 M c) 0.18 M d) 0.25 M

D-26 Calculate the density of palladium metal with a mass of 40.6g and a volume of 3.38 cm³?

- a) 137.23 g/mL b) 0.08 g/mL c) 1201 g/mL d) 12.01 g/mL

D-27 What is the chemical name of the formula SF₄?

- a) Sulfur fluoride b) Sulfur trifluoride c) Sulfur tetrafluoride d) Sulfur hexafluoride

D-28 What is the correct formula of sodium sulfite?

- a) NaSO₄ b) Na₂SO₃ c) NaS d) Na₂SO₄

D-29 The correct formula of a compound consists of I and Ca is

- a) Ca₂I b) CaI₂ c) CaI d) CaI₃

D-30 Which of the following is most likely to be good conductors of heat and electricity?

- a) Zn b) Ne c) S d) F