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|---------------------------------------|--------------------------|----------------------------|
| Date Planned : __ / __ / __           | Daily Tutorial Sheet - 2 | Expected Duration : 90 Min |
| Actual Date of Attempt : __ / __ / __ | Level - 1                | Exact Duration : _____     |

16. What volume of 6M HCl should be added to 2M, 750mL HCl to get 1L of 3M HCl ?  
**(A)** 0.25 L                      **(B)** 1.00 L                      **(C)** 0.75 L                      **(D)** 2.50 L
17. The molarity of 20% by mass  $\text{H}_2\text{SO}_4$  solution of density  $1.28 \text{ g cm}^{-3}$  is :  
**(A)** 2.56 M                      **(B)** 1.56 M                      **(C)** 1 M                      **(D)** 5 M
18. An element, X has the following isotopic composition : ▶  
 $^{200}\text{X} : 90\%$  ;  $^{199}\text{X} : 8.0\%$  ;  $^{202}\text{X} : 2.0\%$   
 The weighted average atomic mass of the naturally occurring element X is close to :  
**(A)** 200 u                      **(B)** 210 u                      **(C)** 202 u                      **(D)** 199 u
19. A hydrate of  $\text{Na}_2\text{SO}_3$  has 50% water in mass. It is : ▶  
**(A)**  $\text{Na}_2\text{SO}_3 \cdot 5\text{H}_2\text{O}$                       **(B)**  $\text{Na}_2\text{SO}_3 \cdot 6\text{H}_2\text{O}$   
**(C)**  $\text{Na}_2\text{SO}_3 \cdot 7\text{H}_2\text{O}$                       **(D)**  $\text{Na}_2\text{SO}_3 \cdot 2\text{H}_2\text{O}$
20. The sodium salt of an acid dye contains 7% of sodium. What is the minimum molar mass of the dye? ▶  
**(A)** 336.5                      **(B)** 286.5                      **(C)** 300.6                      **(D)** 306.5
21. A metal nitride,  $\text{M}_3\text{N}_2$  contains 28% nitrogen. The atomic mass of metal, M is :  
**(A)** 24                      **(B)** 54                      **(C)** 9                      **(D)** 87.62
22. 0.1g of metal combines with 46.6 mL of oxygen to form oxide at STP. The equivalent weight of metal is : ▶  
**(A)** 12                      **(B)** 24                      **(C)** 6                      **(D)** 36
23. Equivalent weight of bivalent metal is 37.2. The molecular wt. of its chloride is : ▶  
**(A)** 412.2                      **(B)** 216                      **(C)** 145.4                      **(D)** 108.2
24. The density (in  $\text{g mL}^{-1}$ ) of a 3.60 M sulphuric acid solution that is 29%  $\text{H}_2\text{SO}_4$  by mass will be: ▶  
**(A)** 1.64                      **(B)** 1.88                      **(C)** 1.22                      **(D)** 1.45
25. The sulphate of a metal M contains 20% of M. This sulphate is isomorphous with  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ . The atomic weight of M is ▶  
**(A)** 12                      **(B)** 24                      **(C)** 36                      **(D)** 48
26. The mass of 1 mole of electrons is :  
**(A)**  $9.1 \times 10^{-28} \text{ g}$                       **(B)** 1.008 mg  
**(C)** 0.55 mg                      **(D)**  $9.1 \times 10^{-27} \text{ g}$
27. A molal solution is one that contains 1 mol of a solute in:  
**(A)** 1000 g of solvent                      **(B)** 1 L of solvent  
**(C)** 1 L of solution                      **(D)** 22.4 L of solution.
28. 100 g  $\text{CaCO}_3$  is treated with 1L of 1N HCl. What would be the weight of  $\text{CO}_2$  liberated after the completion of the reaction?  
**(A)** 55g                      **(B)** 11g                      **(C)** 22g                      **(D)** 44g

29. In 4g atoms of Ag, calculate

**I.** Amount of Ag

(A)  $432, 17.93 \times 10^{-23}$

(C)  $400, 17.93 \times 10^{-23}$

**II.** Weight of one atom of Ag (atomic weight of Ag = 108)

(B)  $332, 17.93 \times 10^{-23}$

(D)  $332, 17.93 \times 10^{-21}$

30. How many gram atoms are there in one atom?

(A)  $1.66 \times 10^{-24}$

(C)  $1.66 \times 10^{-22}$

(B)  $1.66 \times 10^{-23}$

(D)  $1.66 \times 10^{-21}$