

JORDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Chemistry Department
General Chemistry 103

First Exam

الشعبة: 9

الرقم الجامعي:

27

التاريخ: 2012 - 3 - 10

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رقم التسلسل: 76

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	D	B	A	D	B	C	B	B	A	A	B	D	B	C	B	C	D	C	B

Constants: Avogadro's number = 6.02×10^{23}

1 H 1.0																	2 He 4.0
3 Li 6.9	4 Be 9.0											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3											13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.1	17 Cl 35.5	18 Ar 40.0
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 50.9	24 Cr 52.0	25 Mn 54.9	26 Fe 55.9	27 Co 58.9	28 Ni 58.7	29 Cu 63.6	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79	35 Br 79.9	36 Kr 83.8

Choose the most correct answer :

- How many moles of MgO are produced by reaction of 3.82 g of Mg_3N_2 (molar mass = 100.9 g/mol) with 7.73 g of water (H_2O)? : $Mg_3N_2 + 3H_2O \rightarrow 2NH_3 + 3MgO$
 A) 0.114 B) 0.0378 C) 0.429 D) 0.0756
- How many oxygen atoms are there in 2.74 g of $Al_2(SO_4)_3$ (molar mass = 342.3 g/mol).
 A) 12 B) 6.02×10^{23} C) 7.22×10^{24} D) 5.78×10^{22}
- The percent yield of SF_6 in the reaction below is 79%. Calculate the mass (g) of SF_6 if 7.9 g of F_2 reacts with excess sulfur (S). $S + 3F_2 \rightarrow SF_6$
 A) 30 B) 10 C) 8.0 D) 24
Handwritten: $32 + (6 \times 19) = 180$, $\frac{7.9}{180} \times 100 = 4.39\%$, $4.39\% \times 100 = 4.39$
- What is the volume in milliliters of 5.0 M HCl solution are required to prepare 250 mL of 0.20 M HCl.
 A) 10 B) 15 C) 5.0 D) 50
- Which one of the following numbers contains 6 significant figures?
 A) 0.00370223 B) 01.0037 C) 2000.00 D) both A and C
- How many atoms of hydrogen (H) are in 32.0 g of CH_4O (molar mass 32 g/mol)?
 A) 21.3×10^{23} B) 2.40×10^{24} C) 4.00 D) 1.88×10^{22}
- What mass (g) of NO_2 can be produced by combustion of 43.9 g of ammonia (NH_3)?
 $4NH_3 + 7O_2 \rightarrow 4NO_2 + 6H_2O$
 A) 2.58 B) 178 C) 119 D) 0.954

- 8- Calculate the mass in grams of AlBr_3 needed to prepare 5.00×10^2 mL of 0.300 M AlBr_3 solution (molar mass of $\text{AlBr}_3 = 267$ g/mol).
 A) 80.1 B) 40.1 C) 267 D) 134
- 9- What is the volume in liters of 0.250 M HNO_3 required to neutralize a solution prepared by dissolving 17.5 g of NaOH in 350 mL of solution .
 A) 50.0 B) 1.75 C) 0.44 D) 0.07
- 10- The numbers of moles of K^+ ions in 200 mL of 0.20 M of K_2SO_4 solution .
 A) 0.08 B) 0.40 C) 0.04 D) 0.10
- 11- Which one of the following is the *highest* temperature ?
 A) -12°C B) 5.0°F C) 251 K D) 0.0 K
- 12- How many significant figures should there be in the answer to the following problem ?
 $(30.2 - 21.0) (1.89 \times 10^4) \times 1.39$
 A) 1 B) 2 C) 3 D) 4
- 13- The value of $320 \text{ ft} / \text{min}^2$ is _____ m / s^2 . (1 ft = 30.48 cm)
 A) 3.5×10^7 B) 5.58×10^5 C) 1.63 D) 0.0271
- 14- All of the following elements are metalloids except _____ .
 A) B B) P C) Si D) As
- 15- Use the following information to identify the atom or ion .
 Mass Number = 16 , Neutrons = 8 , Electrons = 10
 A) S^{2-} B) O C) O^{2-} D) Ne
- 16- The chemical formula of phosphoric acid is H_3PO_4 . The formula for the compound formed between aluminium ions and phosphate ions is :
 A) $\text{Al}_3(\text{PO}_4)_3$ B) AlPO_4 C) $\text{Al}(\text{PO}_4)_3$ D) $\text{Al}_2(\text{PO}_4)_3$
- 17- All the following are molecular compounds except _____ which is ionic .
 A) PCl_5 B) SOCl_2 C) CaF_2 D) AsH_3
- 18- How many grams of oxygen atoms are there in 76 g of $\text{C}_2\text{H}_{12}\text{O}_2$ (molar mass = 68 g/mol) ?
 A) 18 B) 29 C) 9.0 D) 36
- 19- Argon (Ar) gas has a density of 1.40 g/L at standard conditions. How many argon atoms are in 200 mL of argon gas ?
 A) 9.4×10^{21} B) 3.4×10^{25} C) 4.2×10^{21} D) 3.0×10^{24}
- 20- How many moles of GeH_4 are needed to form 8.00 mol of GeF_3H according to the reaction :
 $\text{GeH}_4 + 3\text{GeF}_4 \rightarrow 4\text{GeF}_3\text{H}$, if the product is obtained in 92.6 % yield ?
 A) 6.5 B) 2.00 C) 8.64 D) 2.16