

(Answers in Classroom) (copy) 22/01/20

23. A 2.34g sample of NaCl (molar mass = 58.44 g/mol) is dissolved in enough water to make 50.20 mL of solution. Calculate the molarity of the resulting solution.  
 a. 0.00797M      b. 7.97M      c. 0.797M      d. 46.6M      e. 2720M
24. How many grams of calcium chloride, CaCl<sub>2</sub> (molar mass=110.98g/mol), are contained in 375. mL of a 1.277 M solution of calcium chloride?  
 a. 0.479g      b. 478g      c. 53.1g      d. 0.00431g      e. 1.277g
25. Calculate the molar mass of phosphoric acid  
 a. 98.00g/mol      b. 97.00g/mol      c. 96.00g/mol      d. 82.00g/mol
26. Calculate the number of particles in 53.40g of aluminum oxide (Al<sub>2</sub>O<sub>3</sub>).  
 a. 101.96      b. 6.02 x 10<sup>23</sup>      c. 3.206x 10<sup>23</sup>      d. 3.33x10<sup>27</sup>
27. Zinc reacts with hydrochloric acid to produce 38.0moles of hydrogen gas. How many grams of hydrogen gas are produced by the reaction?  
 a. 76.8g      b. 38.4g      c. 18.8g      d. 38.0g
28. If 25.00mL of 0.500M lead (II) nitrate solution is mixed with 25.0mL of 0.500M sodium chloride solution, what mass of lead (II) chloride will be formed?  
 a. 1.74g      b. 3.48g      c. 0.870g      d. 0.0580g
29. Calculate the empirical formula of a compound that is 50.04% carbon, 5.59% hydrogen and 44.37% oxygen.  
 a. C<sub>15</sub>H<sub>20</sub>O<sub>10</sub>      b. C<sub>5</sub>H<sub>2</sub>O      c. C<sub>3</sub>H<sub>4</sub>O<sub>2</sub>      d. CHO<sub>2</sub>
30. If the molecular formula mass of a compound is 360g/mol and the empirical formula is C<sub>3</sub>H<sub>4</sub>O<sub>2</sub>, determine the molecular formula of the compound.  
 a. C<sub>15</sub>H<sub>20</sub>O<sub>10</sub>      b. C<sub>5</sub>H<sub>2</sub>O      c. C<sub>3</sub>H<sub>4</sub>O<sub>2</sub>      d. CHO<sub>2</sub>
31. What is average atomic mass of Lithium if 7.42% exists as <sup>6</sup>Li (6.015 g/mol) and 92.58% exists as <sup>7</sup>Li (7.016 g/mol)?  
 a. 6.516amu      b. 6.015amu      c. 7.016amu      d. 6.941amu
32. A sample of solid potassium chlorate was heated in a test tube and decomposed  

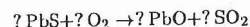
$$2\text{KClO}_3(\text{s}) \rightarrow 2\text{KCl}(\text{s}) + 3\text{O}_2(\text{g})$$
 The oxygen produced was collected by water displacement at 23°C. The resulting mixture of oxygen gas and water vapor had a total pressure of 795 torr and a volume of 750mL. Calculate the number of moles of oxygen present. The vapor pressure of water at 23°C is 2.81kPa.  
 a. 1.02 moles      b. 0.0821 moles      c. 0.0316 moles      d. 0.277 moles
33. A 2.0L flask contains a mixture of nitrogen and oxygen gas at 25°C. The total pressure of the mixture is 0.91atm and the mixture is known to contain 0.050 moles of nitrogen gas. Calculate the moles of oxygen present.  
 a. 0.31 moles      b. 0.61 moles      c. 289 moles      d. 0.025 moles
34. Oxygen gas is produced by  $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$   
 If 50.0mL of a 1.00M solution of H<sub>2</sub>O<sub>2</sub> completely decomposes, what volume of dry oxygen gas can be collected at 21.5°C and 742.2 mmHg?  
 a. 0.619 L      b. 0.977L      c. 0.025L      d. 742.2L
35. You begin the lab with 100. g of a hydrate ZnSO<sub>4</sub>\*xH<sub>2</sub>O. Upon heating, 43.86g of water are released leaving only the anhydrous salt behind. Calculate the empirical formula of the hydrate.  
 a. ZnSO<sub>4</sub>\*H<sub>2</sub>O      b. ZnSO<sub>4</sub>\*2H<sub>2</sub>O      c. ZnSO<sub>4</sub>\*4H<sub>2</sub>O      d. ZnSO<sub>4</sub>\* 7H<sub>2</sub>O
36. What type of reaction is  $4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$  ?  
 a. decomposition      b. synthesis      c. combustion      d. acid base
37. In an experiment, 5.00 grams of carbon monoxide reacts with 5.00 grams of iron (III) oxide (molar mass =159.7g) (molar mass = 28.01). What mass of iron metal will be produced?  $\text{Fe}_2\text{O}_3 + 3\text{CO} \rightarrow 3\text{CO}_2 + 2\text{Fe}$   
 a. 6.64 grams      b. 5.38 grams      c. 1.75 grams      d. 3.50 grams
38. What is the percent yield of the following reaction if 60 grams of CaCO<sub>3</sub> is heated and produces 15 grams of CaO?  

$$\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$$
 a. 44.6%      b. 15%      c. 58%      d. 7.0%
39. Consider the reaction  $\text{HC}_2\text{H}_3\text{O}_2(\text{aq}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{H}_3\text{O}^+(\text{aq}) + \text{C}_2\text{H}_3\text{O}_2^-(\text{aq})$ . Which species is the conjugate acid?  
 A) C<sub>2</sub>H<sub>3</sub>O<sub>2</sub><sup>-</sup>(aq)      B) HC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>(aq)      C) H<sub>2</sub>O(l)  
 D) two of these      E) H<sub>3</sub>O<sup>+</sup>(aq)
40. A solution with a pH of 2.17 is  
 A) neutral      B) basic      C) acidic
41. A solution has [H<sup>+</sup>] = 4.0 × 10<sup>-3</sup> M. The [OH<sup>-</sup>] in this solution is  
 A) 4.0 × 10<sup>-17</sup> M      B) 2.5 × 10<sup>-12</sup> M      C) 1.0 × 10<sup>-14</sup> M  
 D) 4.0 × 10<sup>11</sup> M      E) none of these
42. Calculate the [OH<sup>-</sup>] in a solution that has a pH of 3.18.  
 A) 1.0 × 10<sup>-7</sup> M      B) 3.1 × 10<sup>-15</sup> M      C) 1.5 × 10<sup>-11</sup> M  
 D) 6.6 × 10<sup>-4</sup> M      E) none of these
43. An aqueous solution of ammonium sulfate is allowed to react with an aqueous solution of lead(II) nitrate. Identify the solid in the balanced equation.  
 A) (NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>      B) Pb(NO<sub>3</sub>)<sub>2</sub>  
 C) PbSO<sub>4</sub>      D) NH<sub>4</sub>NO<sub>3</sub>  
 E) There is no solid formed when the two solutions are mixed.
44. A reaction that involves a transfer of electrons is called a(n) \_\_\_\_\_ reaction.  
 A) precipitation      B) acid-base      C) oxidation-reduction  
 D) double-displacement      E) none of these
- Use the following to answer questions 45-47: Use the following choices to classify each reaction given below.  
 a. double replacement      b. single replacement      c. combustion      d. synthesis      e. decomposition
45.  $\text{ZnBr}_2(\text{aq}) + 2\text{AgNO}_3(\text{aq}) \rightarrow \text{Zn}(\text{NO}_3)_2(\text{aq}) + 2\text{AgBr}(\text{s})$
46.  $\text{C}_3\text{H}_8(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 3\text{CO}_2(\text{g}) + 4\text{H}_2\text{O}(\text{g})$
47.  $2\text{Cs}(\text{s}) + \text{F}_2(\text{g}) \rightarrow 2\text{CsF}(\text{s})$
48. Write a balanced chemical equation for the reaction of magnesium and hydrochloric acid
49. Write a balanced equation for the reaction of magnesium hydroxide and nitric acid
50. Write a balanced chemical equation for the reaction of lead (II) nitrate and potassium iodide

This print-out should have 87 questions. Multiple-choice questions may continue on the next column or page - find all choices before answering.

**Balance Equation 105**  
001 1.0 points

When the equation



is balanced, the coefficients are

1. 2; 3; 2; 2

2. 4; 12; 4; 4

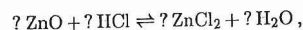
3. 2; 2; 1; 2

4. 1; 2; 1; 1

5. 2; 6; 4; 4

**Mlib 01 3055**  
002 1.0 points

Balance the equation



using the smallest possible integers. The coefficient of HCl is

1. 3.

2. 1.

3. 2.

4. 0.5.

5. 4.

**CIC T03 23**  
003 1.0 points

What is the coefficient for oxygen in the balanced chemical equation for the combustion of heptane ( $\text{C}_7\text{H}_{16}$ )?

1. None of these

2. 8

3. 5

4. 11

5. 1

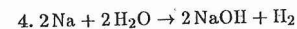
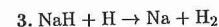
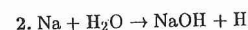
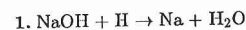
6. 13

7. 7

8. 9

**Mlib 01 3007**  
004 1.0 points

Balance the equation for the reaction of sodium metal with water to produce aqueous sodium hydroxide and hydrogen gas.



**Write Reaction Decomp W**  
005 1.0 points

What are the products when ammonia decomposes to its elements?

1. N, C

2. C, H

3.  $\text{H}_2, \text{N}_2$

4.  $\text{H}_2, \text{O}_2$

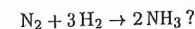
5. Ca, OH

6. Am,  $\text{O}_2$

**Brodelt 20043**  
006 1.0 points

Given that you have 14.5 moles of  $\text{N}_2$ , how

many moles of  $\text{H}_2$  are theoretically needed to produce 22.5 moles  $\text{NH}_3$  according to the reaction



1. 43.5 moles  $\text{H}_2$

2. 15.0 moles  $\text{H}_2$

3. 78.8 moles  $\text{H}_2$

4. 21.8 moles  $\text{H}_2$

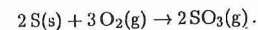
5. 489 moles  $\text{H}_2$

6. 33.8 moles  $\text{H}_2$

7. 2.33 moles  $\text{H}_2$

**Sparks final 016**  
007 1.0 points

Consider the reaction



How many moles of  $\text{SO}_3$  will be produced from 4.0 mol  $\text{O}_2$  and excess S?

1. 3 mol

2. 2 mol

3. 3.42 mol

4. 6 mol

5. 2.67 mol

**Brodelt 03 01**  
008 1.0 points

For the reaction



how much  $\text{CH}_3\text{OH}$  is needed to react with 93.5 g of  $\text{NH}_3$ ?

1. 88.1 mol

2. 3.32 mol

3. 11.3 mol

4. 5.50 mol

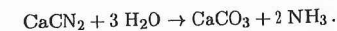
5. 1.31 mol

6. 2.75 mol

7. 46.8 mol

**Brodelt 03 30**  
009 1.0 points

Consider the reaction



How much  $\text{CaCO}_3$  is produced if 47.5 moles  $\text{NH}_3$  are produced?

1. 23.8 g

2. 2380 g

3. 4750 g

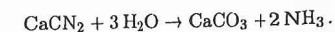
4. 0.950 g

5. 9500 g

6. 0.238 g

**Brodelt 03 26**  
010 1.0 points

Consider the reaction of  $\text{CaCN}_2$  and water to produce  $\text{CaCO}_3$  and  $\text{NH}_3$  according to the reaction



How much  $\text{CaCO}_3$  is produced upon reaction of 45 g  $\text{CaCN}_2$  and 45 g of  $\text{H}_2\text{O}$ ?

1. 250 g

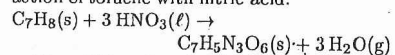
2. 83 g

3. 38 g

4. 56 g  
5. 19 g  
6. 28 g  
7. 750 g

**Limiting Reactant Gases W****011 (part 1 of 3) 1.0 points**

Trinitrotoluene (TNT) is manufactured by reaction of toluene with nitric acid.



Given 100 moles of each reactant, which is the limiting reactant?

1.  $\text{H}_2\text{O}$   
2.  $\text{HNO}_3$   
3.  $\text{C}_7\text{H}_5\text{N}_3\text{O}_6$   
4.  $\text{C}_7\text{H}_8$

**012 (part 2 of 3) 1.0 points**

How many moles of  $\text{C}_7\text{H}_5\text{N}_3\text{O}_6$  are produced?

1. 1.00 mol  
2. 100 mol  
3.  $2.01 \times 10^{-22}$  mol  
4. 225 mol  
5. 2.25 mol  
6. 3.00 mol  
7. 33.3 mol  
8.  $1.85 \times 10^{24}$  mol

**013 (part 3 of 3) 1.0 points**

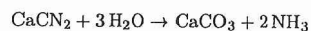
This reaction involves two reactants. One is limiting, the other is not. How much of the non-limiting reactant remains at the end of

the reaction?

1. 97.75 mol  
2. 71.0 mol  
3.  $6.70 \times 10^{-22}$  mol  
4.  $1.85 \times 10^{24}$  mol  
5. 66.7 mol  
6. 0 mol  
7. 3.00 mol  
8. 99.0 mol

**Brodbelt 3200429****014 1.0 points**

Consider the following reaction



What is the percent yield if 15.5 g of  $\text{NH}_3$  is produced upon reaction of 65.5 g of  $\text{CaCN}_2$  and 451 g of water? The molar mass of  $\text{CaCN}_2$  is 80.11 g/mol and the molar mass of  $\text{CaCO}_3$  is 100.09 g/mol.

1. 27.8 %  
2. 55.8 %  
3. 80.15 %  
4. 69.7 %  
5. 1.79 %  
6. 14.5 %  
7. 89.75 %

**Brodbelt 03 13****015 1.0 points**

How many moles of HCl are present in 40.0 mL of a 0.035 M solution?

1. 0.0060 mol

2. 0.0014 mol  
3. 0.25 mol  
4. 0.012 mol  
5. 0.0012 mol

**Mlib 01 1003****016 1.0 points**

A chemist needs 225 mL of 2.4 M HCl. What volume of 12 M HCl must be mixed with water to form this solution?

1. 7.2 mL  
2. 45 mL  
3. 21 mL  
4. 6.8 mL  
5. 3.4 mL

**Brodbelt 10 19****017 1.0 points**

What is the final concentration of KOH when 35.0 mL of 0.250 M KOH is mixed with 15.0 mL of 0.65 M KOH?

1. 3.70 M  
2. 1.23 M  
3. 0.529 M  
4. 0.175 M  
5. 0.370 M  
6. 0.200 M

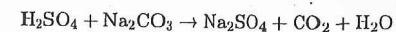
**Msci 18 0855****018 1.0 points**

A bottle labeled 0.150 M sulfuric acid contains a solution with what concentration in sulfate ions?

1. 0.011 M  
2. 0.075 M  
3. 0.139 M  
4. 0.150 M  
5. 0.161 M

**Brodbelt 013 403****019 1.0 points**

In the reaction

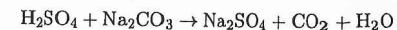


14.5 g of water is collected. What is the molarity of sulfuric acid if 1.78 L were used in the reaction?

1. 0.697 M  
2. 1.43 M  
3. 146 M  
4. 1.78 M  
5. 0.453 M  
6. 0.0046 M

**Brodbelt 11 02****020 1.0 points**

In the reaction below, 150.0 g of water is collected. How many liters of sulfuric acid were used if the concentration is 0.650 M?



1. 10.6 L  
2. 4.23 L  
3. 12.8 L  
4. 4130 L  
5. 17.0 L

6. 0.670 L

**Brodbelt 11 04**  
021 1.0 points

75.6 mL of an HF solution reacted exactly with 125 mL of 0.0350 M NaOH solution. Calculate the molarity of the HF solution.

1. 0.0579 M

2. 0.637 M

3. 0.394 M

4. 2.67 M

5. 1.26 M

6. 0.0482 M

**Brodbelt 11 15**  
022 1.0 points

What volume of 0.602 M Sr(OH)<sub>2</sub> would be needed to neutralize 13.2 L of 3.01 M HCl?

1. 23.9 L

2. 39.7 L

3. 66.0 L

4. 132 L

5. 33.0 L

**Brodbelt 30041**  
023 1.0 points

How many mL of a 12.35 M solution of LiBr can be prepared if you have 1.78 g of LiBr available? The molar mass of LiBr is 86.845 g/mol.

1. 37.8 mL

2. 1910 mL

3.  $1.91 \times 10^6$  mL4.  $1.25 \times 10^5$  mL

5. 1.66 mL

6. 253 mL

**Brodbelt 013 306**  
024 1.0 points

Which pair of bonded atoms has the largest dipole moment?

1. C — C

2. N — N

3. C — N

4. C — O

5. C — F

**Brodbelt 07 06**  
025 1.0 points

The concept of "polarity" *within a bond is due to*

1. the number of electrons shared by any pair of atoms.

2. similarities in attractions for shared electrons when the electronic and molecular geometries are the same.

3. the optimal Lewis dot structure for any pair of atoms.

4. one atom of a bonded pair of atoms exerting a greater attractive force on the shared electrons.

5. atoms that are bonded together but have unequal numbers of lone pair electrons.

**CIC Bond Type 710b**

026 1.0 points

Select the set of bonds below that lists in order *of decreasing boiling point.*

1. Na — S, Br — Br, N — H

**LDE Lewis Structures 002**  
035 1.0 points

Which of the following compounds has only single bonds?

- I) N<sub>2</sub>  
II) O<sub>2</sub>  
III) H<sub>2</sub>  
IV) CH<sub>4</sub>

1. I only

2. III, IV

3. III only

4. II only

5. I, IV

6. I, II

**Lewis Cl<sub>2</sub> dash**  
036 1.0 points

Which of the following is the correct Lewis formula for chlorine (Cl<sub>2</sub>)?

1.  $\overset{\cdot\cdot}{\text{Cl}}-\overset{\cdot\cdot}{\text{Cl}}:$ 2.  $\overset{\cdot\cdot}{\text{Cl}}=\overset{\cdot\cdot}{\text{Cl}}$ 3.  $:\text{Cl}\equiv\text{Cl}:$ 4.  $:\overset{\cdot\cdot}{\text{Cl}}-\overset{\cdot\cdot}{\text{Cl}}:$ 5.  $\overset{\cdot\cdot}{\text{Cl}}-\overset{\cdot\cdot}{\text{Cl}}$ 6.  $\text{Cl}-\overset{\cdot\cdot}{\text{Cl}}:$ 7.  $\text{Cl}-\text{Cl}$ 8.  $:\text{Cl}-\overset{\cdot\cdot}{\text{Cl}}:$ **CIC T10 03**  
033 1.0 points

2. K — O, H — F, N — H

3. N — O, O — H, N — H

4. Na — S, N — H, Br — Br

5. Br — Br, N — H, Na — S

**DAL 006 0007**  
027 1.0 points

The bonding in LiF is predominantly

1. covalent.

2. nonbonding.

3. ionic.

4. polar covalent.

5. There is no predominant mode of bonding for this compound.

**Bonding 14**  
030 1.0 points

Compounds formed between two nonmetals will have which bond?

1. metallic

2. covalent

3. ionic

**Mlib 03 0017**  
031 1.0 points

Covalent bonds involve

1. electrostatic forces.

2. a sharing of electrons.

3. different charges.

4. a transfer of electrons.

**Brodbelt 12 03**  
**048 1.0 points**

A gas has a volume of 2.0 L at a pressure of 3.00 atm. What pressure is needed to change the volume to 6.00 L at constant temperature?

- 2.0 atm
- 4.0 atm
- 1.0 atm
- 9.0 atm

**Brad C12 001**  
**049 1.0 points**

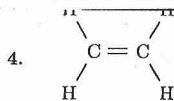
A certain quantity of a gas occupies 61.3 mL at 68°C. If the pressure remains constant, what would be the volume of the gas at 128°C?

- 32 mL
- 52 mL
- 92 mL
- 72 mL

**Brad C12 003**  
**050 1.0 points**

If the temperature of a fixed amount of gas is increased at constant pressure its volume will

- increase.
- decrease.
- remain the same.
- Insufficient data to answer this question


**Brodbelt 122005411**  
**051 1.0 points**

A sample of N<sub>2</sub> gas occupies a volume of 746 mL at STP. What volume would N<sub>2</sub> gas occupy at 155 °C at a pressure of 368 torr?

- 588 mL
- 1792 mL
- 3295 mL
- 312 mL
- 323 mL
- 2415 mL
- 566 mL
- 983 mL

**Brodbelt 12 01**  
**052 1.0 points**

HF is a corrosive gas. At 2.0 atm and 300 K, HF occupies a 4.50 L volume. How many grams of HF are in the volume?

- 2.74 g
- Not enough information is given.
- 0.573 g
- 15.6 g
- 4.82 g
- 7.3 g

**ChemPrin3e T04 11**  
**053 1.0 points**

What volume is occupied by 1.00 kg of helium at 5.00°C at a pressure of 735 Torr?

- $5.90 \times 10^3$  L
- $2.95 \times 10^3$  L
- $5.97 \times 10^5$  L
- $1.06 \times 10^2$  L
- $5.60 \times 10^3$  L

**DAL 0301 04**  
**062 1.0 points**

Consider four molecules

- CHCl<sub>3</sub>
- CH<sub>4</sub>
- CH<sub>3</sub>Cl
- CCl<sub>4</sub>

Which of these exhibit permanent dipole-dipole interactions?

- I only
- I, III, and IV only
- None of these
- III only
- I and III only

**IMF types 1**  
**063 1.0 points**

Identify the kinds of intermolecular forces that might arise between molecules of CH<sub>3</sub>OH.

- dipole-dipole
- dispersion forces
- hydrogen bonding
- dispersion forces, dipole-dipole
- dispersion forces, dipole-dipole, hydrogen bonding
- None of these

**Mlib 04 0015**  
**064 1.0 points**

Which is the weakest type of attractive force between particles?

- hydrogen bond
- covalent bond
- dispersion forces
- ionic bond

**ChemPrin3e T04 11**  
**054 1.0 points**

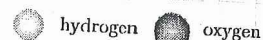
What volume is occupied by 1.00 kg of helium at 5.00°C at a pressure of 735 Torr?

- $1.06 \times 10^2$  L
- $5.97 \times 10^5$  L
- $2.95 \times 10^3$  L
- $5.90 \times 10^3$  L
- $5.60 \times 10^3$  L

**ChemPrin3e T05 16a**  
**060 1.0 points**

Which of the following is the strongest intermolecular force between molecules?

- dipole-dipole
- induced dipole
- London Dispersion
- hydrogen bonding

**CIC T05 19**  
**061 1.0 points**


Which figure best describes the hydrogen bonding between two water molecules?

- 
- 
- 
-

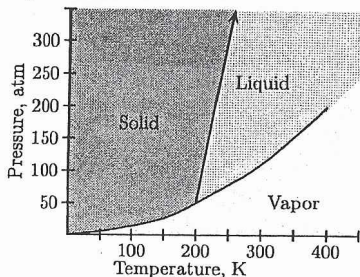
Mlib 04 2029  
065 1.0 points

Forces between particles (atoms, molecules, or ions) of a substance are called

1. intermolecular forces.
2. armed forces.
3. None of these
4. intramolecular forces.

ChemPrin3e T08 18  
066 1.0 points

The phase diagram for a pure compound is given below.

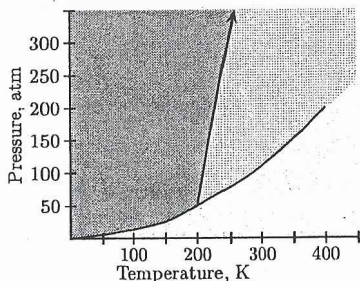


The triple point occurs at

1. greater than 50 atm and greater than 200 K.
2. 50 atm and 200 K.
3. 320 atm and 250 K.
4. 0 atm and 200 K.
5. 200 atm and 400 K.

ChemPrin3e T08 20 nolabel  
067 1.0 points

The phase diagram for a pure substance is given below.



What is the lowest temperature at which liquid can exist?

1. 150 K
2. 0 K
3. 250 K
4. 200 K
5. 400 K

Mlib 07 0047  
076 1.0 points

An Arrhenius acid must contain ? and dissociate in aqueous solutions to produce ?.

1. an unshared pair of pair of electrons; a nonelectrolytic solution
2. the hydroxide ion or hydroxyl group; hydroxide ions
3. an unshared pair of electrons; an electrolytic solution
4. hydronium ions; a solution whose pH is greater than 7.0
5. hydrogen; hydrogen ions

Brodbelt 013 408  
077 1.0 points

What is the conjugate acid of  $\text{NO}_3^-$ ?

1.  $\text{OH}^-$
2.  $\text{HNO}_3$
3.  $\text{NO}_2^-$
4.  $\text{NH}_3$
5.  $\text{NO}_3^{2-}$
6.  $\text{H}^+$

Brodbelt 013 411  
078 1.0 points

According to the Bronsted-Lowry concept of acids and bases, which of the following statements about a base is NOT true?

1. A base must contain a hydroxide group.
2. A base reacts with an acid to form a salt.
3. A base will share one of its electron pairs to bind  $\text{H}^+$ .
4. If a base is strong, then its conjugate acid will be relatively weaker.

Mlib 07 0023  
079 1.0 points

According to the Bronsted-Lowry Theory of acids and bases, a base is

1. an electron donor.
2. a proton donor.
3. a proton acceptor.
4. an electron acceptor.
5. a substance which when dissolved in water yields  $\text{OH}^-$ .

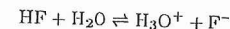
Mlib 07 0075  
080 1.0 points

In acid-base reactions,  $\text{H}_2\text{O}$

1. can act as a base.
2. cannot act as an acid nor a base since it is neutral.
3. can act as an acid.
4. can act either as a base or an acid.

Mlib 07 0079  
081 1.0 points

In the equation



1. HF is an acid and  $\text{F}^-$  is its conjugate base.
2.  $\text{H}_2\text{O}$  is an acid and HF is its conjugate base.
3.  $\text{H}_2\text{O}$  is a base and HF is its conjugate acid.
4. HF is a base and  $\text{F}^-$  is its conjugate acid.

Brodbelt 10 20  
082 1.0 points

How many grams of NaOH are needed to give a pH of 11.5 in a 14.5 L tank of water?

1. 2.46 g
2. 0.123 g
3. 0.00872 g
4. 100. g
5. 5.67 g
6. 1.83 g

CIC T06 04  
083 1.0 points

Determine the concentration of hydroxide ions in a 4,500 mL solution containing 3.78 g of hydrogen bromide ( $K_w = 1.00 \times 10^{-14}$ ).

1.  $[\text{OH}^-] = 2.14 \times 10^{-13} \text{ M}$
2.  $[\text{OH}^-] = 4.67 \times 10^{-2} \text{ M}$
3.  $[\text{OH}^-] = 9.62 \times 10^{-13} \text{ M}$
4.  $[\text{OH}^-] = 0.0104 \text{ M}$

**Convert pH, pOH, etc 1****084 1.0 points**

For a solution with an  $[H^+]$  of  $10^{-4}$  M, what would be the value of  $[OH^-]$ , pH and pOH, respectively?

- $10^{-10}$  M, 10, 14
- $10^{-4}$  M, 4, 10
- $10^{-10}$  M, 4, 10
- $10^{-14}$  M, 4, 10
- $10^{-14}$  M, 10, 4
- $10^4$  M, 4, 10

**Mlib 07 1009****085 1.0 points**

A solution has a pH of 4.35. Find the pOH.

- 18.35
- 4.35
- 9.65
- None of these

**Mlib 07 1017****086 1.0 points**

A solution has  $[H^+] = 2.0 \times 10^{-5}$  M. Find the pOH of this solution.

- 5.20
- 9.30
- 4.70
- 4.70
- None of these

**Mlib 07 1091****087 1.0 points**

The pH of a human blood sample was measured to be 7.41. What is the  $[OH^-]$  in this blood?

- $3.89 \times 10^{-8}$  mol/L
- 6.59 mol/L
- $4.12 \times 10^{-7}$  mol/L
- $6.05 \times 10^{-7}$  mol/L
- Cannot be determined from the information given.
- $2.57 \times 10^{-7}$  mol/L