

1) Which one of the following compounds is insoluble in water?

- A)  $\text{Na}_2\text{CO}_3$
- B)  $\text{K}_2\text{SO}_4$
- C)  $\text{Fe}(\text{NO}_3)_3$
- D)  $\text{ZnS}$
- E)  $\text{AgNO}_3$

2) In which reaction does the oxidation number of oxygen increase?

- A)  $\text{Ba}(\text{NO}_3)_2 (\text{aq}) + \text{K}_2\text{SO}_4 (\text{aq}) \rightarrow \text{BaSO}_4 (\text{s}) + 2\text{KNO}_3 (\text{aq})$
- B)  $\text{HCl} (\text{aq}) + \text{NaOH} (\text{aq}) \rightarrow \text{NaCl} (\text{aq}) + \text{H}_2\text{O} (\text{l})$
- C)  $\text{MgO} (\text{s}) + \text{H}_2\text{O} (\text{l}) \rightarrow \text{Mg}(\text{OH})_2 (\text{s})$
- D)  $2\text{SO}_2 (\text{g}) + \text{O}_2 (\text{g}) \rightarrow 2\text{SO}_3 (\text{g})$
- E)  $2\text{H}_2\text{O} (\text{l}) \rightarrow 2\text{H}_2 (\text{g}) + \text{O}_2 (\text{g})$

3) Oxidation is the \_\_\_\_\_ and reduction is the \_\_\_\_\_.

- A) gain of oxygen, loss of electrons
- B) loss of oxygen, gain of electrons
- C) loss of electrons, gain of electrons
- D) gain of oxygen, loss of mass
- E) gain of electrons, loss of electrons

4) What volume (mL) of a concentrated solution of sodium hydroxide (6.00 M) must be diluted to 200.0 mL to make a 0.880 M solution of sodium hydroxide?

- A) 0.0264
- B) 176
- C) 26.4
- D) 29.3
- E) 33.3

## CHM 106 M013 (General Chemistry I), Quiz 2

Name \_\_\_\_\_; SUID \_\_\_\_\_

Please choose the one alternative that best completes the statement or answers the question.

1) When a system \_\_\_\_\_,  $\Delta E$  is always negative.

- A) absorbs heat and does work
- B) gives off heat and does work
- C) absorbs heat and has work done on it
- D) gives off heat and has work done on it
- E) None of the above is always negative.

2) For the following reactions, the  $\Delta H^\circ_{\text{rxn}}$  is NOT equal to  $\Delta H^\circ_f$  for the product except for \_\_\_\_\_.

- A)  $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{NO}(\text{g})$
- B)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{l})$
- C)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$
- D)  $2\text{C}(\text{s, graphite}) + 2\text{H}_2(\text{g}) \rightarrow \text{C}_2\text{H}_4(\text{g})$
- E)  $\text{H}_2\text{O}(\text{l}) + 1/2 \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}_2(\text{l})$

3) The wavelength of light that has a frequency of  $1.66 \times 10^9 \text{ s}^{-1}$  is \_\_\_\_\_ m.

- A) 0.181
- B) 5.53
- C)  $2.00 \times 10^{-9}$
- D)  $5.53 \times 10^8$
- E) none of the above

4) The energy of a photon that has a wavelength of  $8.33 \times 10^{-6} \text{ m}$  is \_\_\_\_\_ J.

( $c = 3.0 \times 10^8 \text{ m/s}$ ;  $h = 6.626 \times 10^{-34} \text{ J}\cdot\text{s}^{-1}$ )

- A)  $2.20 \times 10^{-26}$
- B)  $3.60 \times 10^{13}$
- C)  $2.39 \times 10^{-20}$
- D)  $2.7 \times 10^9$
- E)  $4.5 \times 10^{-25}$

### CHM 106 M013 (General Chemistry I), Quiz 3

Name \_\_\_\_\_; SUID \_\_\_\_\_

Please choose the one alternative that best completes the statement or answers the question.

1) Give the correct order for atomic radius for Mg, Na, P, Si and Ar?

2) Rank the following elements in terms of decreasing first ionization energies?

Be, B, N, O, and Ne

3) Reacting CO<sub>2</sub> with water results in a(n) \_\_\_\_\_ solution.

A) ionic

B) neutral

C) basic

D) acidic

E) CO<sub>2</sub> does not react with water