Quiz 10A

Question 1. Classify each of these compounds as an Arrhenius acid, an Arrhenius base, or neither (4 points):

1. HClO3 \_\_\_\_\_\_Arrhenius acid\_\_\_\_\_\_\_\_\_\_\_\_
2. NaCl \_\_\_\_\_\_neither\_\_\_\_\_\_\_\_\_\_\_\_
3. Mg(OH)2 \_\_\_\_\_\_Arrhenius base\_\_\_\_\_\_\_\_\_\_\_\_
4. CH4 \_\_\_\_\_\_neither\_\_\_\_\_\_\_\_\_\_\_\_

Question 2. Name the following compounds (4 points):

1. CBr4 \_\_\_\_\_\_carbon tetrabromide\_\_\_\_\_\_\_\_\_\_\_\_
2. HF (aq) \_\_\_\_\_\_hydrofluoric acid \_\_\_\_\_\_\_\_\_\_\_\_\_
3. KOH \_\_\_\_\_\_potassium hydroxide\_\_\_\_\_\_\_\_\_\_\_\_\_
4. HNO3 (aq) \_\_\_\_\_\_nitric acid\_\_\_\_\_\_\_\_\_\_\_\_\_

Question 3. The half-life for the radioactive decay of calcium-47 is 4.5 days. If a sample has an activity of 4.0 Ci after 9.0 days, what was the initial activity of the sample (5 points)?

Question 4. Calcium chloride reacts with sodium hydroxide to form solid calcium hydroxide, Ca(OH)2. The balanced net ionic equation is (2 points):

1. CaCl2 (aq) + 2 NaOH (aq) 🡪 CaOH (s) + NaCl (aq)
2. CaCl2 (aq) + 2 NaOH (aq) 🡪 Ca(OH)2 (s) + 2 NaCl (aq)
3. Ca2+ (aq) + 2 OH- (aq) 🡪 Ca(OH)2 (s)
4. Ca2+(aq) + 2 Cl- (aq) + 2 Na+ (aq) + 2 OH- (aq) 🡪 Ca(OH)2 (s) + 2 Na+ (aq)+ 2 Cl- (aq)
5. Ca2+ (aq) + 2 Cl- (aq) + 2 Na+ (aq) + 2 OH- (aq) 🡪 Ca(OH)2 (s)

Question 5. The radioactive atom is an alpha emitter. Write the nuclear equation (3 points).

Question 6. The analyte is (acetic acid/sodium hydroxide) in this week’s experiment (2 point).

Quiz 10B

Question 1. The standard solution is (acetic acid/sodium hydroxide) in this week’s experiment (2 point).

Question 2. The half-life for the radioactive decay of calcium-47 is 4.5 days. If a sample has an activity of 6.0 Ci after 9.0 days, what was the initial activity of the sample (5 points)?

Question 3. The radioactive atom emits a beta particle. Write the nuclear equation (3 points).

Question 4. Calcium chloride reacts with sodium hydroxide to form solid calcium hydroxide, Ca(OH)2. The balanced total ionic equation is (2 points):

1. CaCl2 (aq) + 2 NaOH (aq) 🡪 CaOH (s) + NaCl (aq)
2. CaCl2 (aq) + 2 NaOH (aq) 🡪 Ca(OH)2 (s) + 2 NaCl (aq)
3. Ca2+ (aq) + 2 OH- (aq) 🡪 Ca(OH)2 (s)
4. Ca2+(aq) + 2 Cl- (aq) + 2 Na+ (aq) + 2 OH- (aq) 🡪 Ca(OH)2 (s) + 2 Na+ (aq)+ 2 Cl- (aq)
5. Ca2+ (aq) + 2 Cl- (aq) + 2 Na+ (aq) + 2 OH- (aq) 🡪 Ca(OH)2 (s)

Question 5. Name the following compounds (4 points):

1. HClO3 (aq) \_\_\_\_\_\_chloric acid\_\_\_\_\_\_\_\_\_\_\_\_
2. HBr (aq) \_\_\_\_\_\_hydrobromic acid\_\_\_\_\_\_\_\_\_\_\_\_
3. Mg(OH)2 \_\_\_\_\_\_magnesium hydroxide\_\_\_\_\_\_\_\_\_\_\_\_
4. CF4 \_\_\_\_\_\_carbon tetrafluoride \_\_\_\_\_\_\_\_\_\_\_\_

Question 6. Classify each of these compounds as an Arrhenius acid, an Arrhenius base, or neither (4 points):

1. CH4 \_\_\_\_\_\_neither\_\_\_\_\_\_\_\_\_\_\_\_
2. HF \_\_\_\_\_\_Arrhenius acid\_\_\_\_\_\_\_\_\_\_\_\_\_
3. KOH \_\_\_\_\_\_Arrhenius base\_\_\_\_\_\_\_\_\_\_\_\_\_
4. HNO3 \_\_\_\_\_\_Arrhenius acid\_\_\_\_\_\_\_\_\_\_\_\_\_