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)?

$$9.0 day×\frac{1 half-life}{4.5 days}=2 half-lives$$

$$4.0 Ci→8.0 Ci→16 Ci$$

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).

$$\rightarrow +$$

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)?

$$9.0 day×\frac{1 half-life}{4.5 days}=2 half-lives$$

$$6.0 Ci→12 Ci→24 Ci$$

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

$$\rightarrow +$$

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\_\_\_\_\_\_\_\_\_\_\_\_\_