**Mini-quiz #17 Chemistry 1114 Monday 21 October 2013**

**6 pts**

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A**

**Given the reaction:**

**MW=** 36 27 123 2 g/mol

6HCl + 2Al -----🡪 2AlCl3 + 3H2

**SHOW WORK !!!**

1. How many grams of Al must react to form 0.5555 grams of H2 ?

0.5555/2 = mol H2 =0.27777 mol H2

mol Al/mol H2 = 2/3=m/0.27777

m=2\*0.27777/3=0.1851 mol Al=> 27 g/mol \*0.185=5 g

g Al to form 0.555 g H2= \_\_\_5 g \_\_\_\_\_\_

1. How many molecules of HCl are needed to make 34.165 g AlCl3?

34.165 g AlCl3 = 0.277 mol AlCl3

123 g mol-1

Mol HCl = 6 = m

Mol AlCl3  2 0.277

m=0.277\*6/2=0.8333 mol => 0.8333mol \*6\*1023 molecules/mol=**5\*1023**

Molecules HCl needed to make 34.165 g AlCl3 =\_**5\*1023**\_\_\_\_\_

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**Given the reaction:**

**MW=** 36 27 123 2 g/mol

6HCl + 2Al -----🡪 2AlCl3 + 3H2

**SHOW WORK !!!**

1. How many grams of Al must react to form 1.6666 grams of H2 ?

1.6666/2 = mol H2 =0.83333 mol H2

mol Al/mol H2 = 2/3=m/0.8333

m=2\*0.8333/3=0.5555 mol Al=> 27 g/mol \*0.5555 mol Al=15 g

g Al to form 1.666 g H2= \_\_\_=15 g \_\_\_\_\_\_\_

1. How many molecules of HCl are needed to make 102.495 g AlCl3?

102.495 g AlCl3 = 0.833 mol AlCl3

123 g mol-1

Mol HCl = 6 = m

Mol AlCl3  2 0.833

m=0.8333\*6/2=2.5 mol => 2.5 mol \*6\*1023 molecules/mol=**15\*1023**

Molecules HCl needed to make 102.495 g AlCl3 =\_\_\_**15\*1023**\_\_\_\_\_\_