

CHEM 1104 TEST#2

NAME:

Date: May 23, 2018

Student Number:

1. Convert the following:

a) 42.5 g of SO₃ into moles **Note:** 1 mole SO₃ = 64.07 g SO₃ = 6.022×10²³ SO₃ molecules

b) 42.5 g SO₃ into number of SO₃ molecules:

c) 4.00×10²⁴ SO₃ molecules into mass(g):

2.a) Determine the molarity of a solution prepared by dissolving 12.5 g of NaOH into 250.00 mL of water.

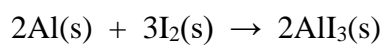
Molar Mass of NaOH = 40.0 g/mole

1 L = 1000 mL

b) A student wished to prepare 300. mL of a 0.200 M HCl solution using the 12.0 M HCl stock solution provided. How much of the stock solution is needed for this dilution?

$$M_1 \times V_1 = M_2 \times V_2$$

3. Given the reaction below:



Molar Mass of Al = 26.98 g/mole

Molar Mass of I₂ = 253.80 g/mole

Molar Mass of AlI₃ = 407.70 g/mole

If this reaction is performed using 81.0 g Al(s) and 1070 g of I₂(s):

- Determine the limiting reagent.
- Calculate the mass of AlI₃(s) that should be produced.
- If 860. g of AlI₃(s) is actually produced, calculate the percent yield.

Answer Set for CHEM 1104 TEST#2

1.a) 0.663 moles ; b) 4.00×10^{23} molecules; c) 426. g; 2 pt

2.a) 1.25 M; 2 pt

b) 5.00 mL; 1 pt

3.a) I₂; b) 1150 g; c) 75.0%; 5 pt