

Introduction to General Chemistry CHM 1025C
FINAL EXAM

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NOTE: **Failure to put the Units in**
 Failure to show all math work
 Failure to properly round

= POINTS OFF
= POINTS OFF
= POINTS OFF

YOUR NAME _____

1. (1 pts)

Your start time on this test _____

Your finish time on this test: _____

Time it took you to do this test: _____

2. Answer the following (3 Pts ea):

Put your answer in Scientific Notation:

2.1. $1.25 \text{ cm} \times 1.25 \text{ cm} =$ _____

2.2. $8.315 \text{ " } / 298 \text{ " } =$ _____

2.3 For the following math manipulations, perform the math calculation:

1234.00 mm	1277.5
12.345 mm	x 2
+ 1. mm	_____

2.4 For the following math manipulations, perform the math calculation:

1277.5	1277.5
x 2.	x 2.00

3. Perform the following conversions – Do 1 of the following (10 Pts):

3.1. 1.0 Mile to mm:

***** -OR- *****

3.1. 1.5 Tons to grams

4. Reactions and Equations (8 Pts ea):

******* DO ONE OF THE FOLLOWING *******

4.1 For the reaction of Silver Nitrate and Magnesium Chloride:

- A. Write the Unbalanced Chemical Equation
- B. Write the Complete Ionic Equation
- C. Write the Net Ionic Equation

******* -OR- *******

4.1 Sulfuric Acid and Calcium Hydroxide

- A. Write the Formulae for the Reactants and Products
- B. Balance the Equation
- C. Will the Reaction go to Completion

******* YOU MUST DO THE FOLLOWING *******

4.2 An organic compound containing only C, H, N and O has the following analysis

C	49.47%
H	5.191%
N	28.86%

What is the empirical formula?

The approximate molar mass is 194. What is the Molecular formula?

******* DO ONE OF THE FOLLOWING *******

4.3 Starting with 1.00 g of Hydrochloric Acid and assuming the reaction generates only a 50% yield, how much sodium chloride is produced from the reaction of Sodium Bicarbonate with Hydrochloric Acid?

******* -OR- *******

4.3 Aluminum reacts with Chlorine to form Aluminum Chloride. How much Aluminum Chloride is produced from 1.000 g of Aluminum assuming a 75% reaction yield?

5. Multi Choice CIRCLE ANS (2 Pts ea):

5.1 The Scientific Approach uses:

- Propose a Theory
- Lot's of studying
- Proposing a possible solution
- Careful and accurate data collection

5.2 The SI System does not include

- Centigrade
- Kilogram
- Meter
- None of the above

5.3 Which is the most accurate device to measure exactly 25 ml of water:

- A Beaker
- A Florence Flask
- A Graduate Cylindar
- A pipette

5.4 When the calculation $(0.005215) * (0.08212) * (273) / (4.1)$ is performed, the answer should be reported to how many significant digits:

- 1
- 2
- 3
- 4

5.5 Which are Physical Properties

- Food is digested in our stomach
- Ability to react with Oxygen
- Color
- A plant grows

5.6 Distillation can be used to purify

- A mixture of solids
- A mixture of liquids
- Homogeneous Mixtures
- Heterogeneous Mixtures

5.7 In 1999 NASA lost the Mars Climate Orbiter because

- The made a math error
- They did not calculate their path to the correct number of significant digits
- There was an error in the units used in their calculations
- They used the wrong rocket fuel in the last stage engines

5.8 A nickel weighs about 5 grams. This is an example of

- Length
- Mass
- Volume
- None of the above

5.9 What is NOT a driving force for a chemical reaction:

- Formation of a solid
- Formation of a gas
- Ionization in an aqueous solution
- Formation of water

5.10 As described in Chapter 7, which reaction will form a precipitate

- Sodium Metal reacting with water
- $\text{NaOH} + \text{HCl} \rightarrow$
- $\text{CH}_4 + \text{O}_2 \rightarrow$
- $\text{K}_2\text{CrO}_4 + \text{Ba}(\text{NO}_3)_2 \rightarrow$

5.11 The general rule of solubility says

- All salts will dissolve in water
- When a salt dissolves in water it will ionize
- Most sulfides will dissolve in water
- Most nitrates will dissolve in water

5.12 Which chloride will NOT dissolve in water:

- Copper Chloride
- Zinc Chloride
- Silver Chloride
- Magnesium Chloride

5.13 To become a Cation, an element must:

- Get in a fight with a dog
- Loose an electron
- Gain an electron
- Gain a neutron
- None of the above

5.14 The reaction of a strong acid and a strong base will always generate a

- A Precipate
- A Gas
- A Salt
- A Flame

6. Fill in the Blanks (2 Pts ea):

6.1 All elements are composed of what?

6.2 What is an Amphoteric Substance

6.3 Write the names of the components of an element in order of mass

6.4 Rutherford's experiment demonstrated that the atomic structure was not that of plum pudding. He used a _____ particle and it had a _____ charge

6.5 Different number of _____ in the nucleus of an atom result in various _____ of that atom

6.6 When we take an electron away from a neutral atom we form a

6.7 What is the name of an atom in its rest state, in its high energy state

6.8 Name 4 Driving Forces for a reaction to occur.

A. _____

C. _____

B. _____

D. _____

6.9 Barium Sulfide

6.10 Magnesium Iodide

6.11 BF_3

6.12 KHCO_3

6.13 Sulfuric Acid

Summary:

Section	# of Quest	Pts Ea	Total Pts	
1. Time	1	1	1	_____
2. Answer the following	4	3	12	_____
3. Perform the following Conversions	1	10	10	_____
4. Reactions and Equations	3	8	24	_____
5. Multiple Choice	14	2	28	_____
6. Fill in the Blanks	13	2	26	_____
Total			101 %	_____