

Cell phones, PDAs, mp3 players, and other electronic devices must be turned off and stowed out of sight (your sight and mine). Calculator policy is in effect. Infractions will cost you points!

ALL outside paper must be stowed out of sight. Unauthorized materials will result in your exam being removed and a score of 0 assigned. If you reach a point where you need more scratch paper than the space available, ask a proctor.

Please clearly and legibly write your name, in ink, at the top of both pages of your answer sheet. Your score will not be recorded and your exam will not be returned if this is not done.

All answers should be rounded to the appropriate precision (correct significant figures.)

Atomic weights are provided in the Periodic Table. These values must be used.

Be certain your answers are clear. If an answer is not clear, it will probably be considered wrong.

Use your time effectively.

When authorized to open your exam, you may carefully remove this cover sheet. When you are finished with your exam, please turn in **only the answer sheet**. Make sure your name is clearly written on both pages.

Time is up at 11:50!!

Potentially useful information:

$$6.022 \times 10^{23}$$

$$1 \text{ mL} = 1 \text{ cm}^3$$

name _____

Scored grade (instructor use only!) _____

1. [4 points] What is the mass, in grams, of 2.30 moles of aluminum oxide? Circle the correct answer.

43.0 44.3 59.0 70.0 75.0 86.0 96.9 98.9 102 109
113 129 136 172 161 198 223 235 260. 297

2. [6 pts] Fill in the table below:

Symbol	# protons	# electrons	# neutrons	mass number	charge
		18	17		-2
	19	18		40	

3. [10 pts] Give the **correct name** for each of the following. Spelling counts.

_____ Hg_2Cl_2

_____ Na_3PO_4

_____ Si_2Cl_4

_____ SO_3

_____ MnC_2O_4

4. [10 pts] Give the correct **chemical formula** for each of the following.

_____ hydrogen peroxide _____ sulfur hexafluoride

_____ silver nitrate _____ copper(II) sulfate

_____ methane

5. [3 points] Galena, a mineral of lead, is a compound of the metal with sulfur. Analysis shows that a 2.34-g sample of galena contains 2.03 g of lead. Calculate the mass percent of **sulfur** in galena (rounded to the appropriate precision). **Clearly show your work** to earn credit.

name _____

6. [18 pts] **Clearly** indicate whether each statement is TRUE or FALSE. If we can't tell which you mean, it's wrong.

_____ The value 109.020 has six significant figures.

_____ The compound $\text{Fe}(\text{OH})_2$ contains both ionic and covalent bonds.

_____ $\text{Fe}(\text{OH})_2$ is an ionic compound.

_____ All transition elements are metals.

_____ The mass number of an atom of fluorine-19 is 19.00.

_____ One mole of neon weighs 20.18 amu.

_____ There are variable-charge main-group metals.

_____ $1 \text{ m}^3 = 10^9 \text{ mm}^3$.

_____ N_2O_3 is composed of N^{3-} and O^{2-} ions.

7. [14 pts] Supply the **symbol** of the correct element for each of the following descriptions. In some cases there could be more than one acceptable answer; provide **one**.

_____ A nonmetal in Period 6.

_____ A Group 14 metal.

_____ An element that appears as diatomic molecules.

_____ A transition metal that forms a constant-charge cation.

_____ An element that does not form covalent compounds.

_____ An element that forms **only** covalent compounds.

_____ An element that forms both a +1 monatomic ion and a -1 monatomic ion.

8. [10 pts]**In the space below, write the balanced equation for the following reaction:

Lead(II) nitrate decomposes to produce lead(II) oxide, nitrogen monoxide, and oxygen gas.