

**\*\*KEEP YOUR WORK AND ANSWERS COVERED.\*\***

1. (24 pts) Indicate whether each statement is true (T) or false (F). Be certain T or F is clearly indicated.

T Every measuring device has an uncertainty.

T Most of the mass of an atom lies in the nucleus.

F Atoms of different elements cannot have the same mass number.

T Methane is a molecular compound.

F Selenium dibromide has ionic bonds.

T The chemical formula of an ionic network compound is the smallest, whole-number ratio of cations and anions.

T Arsenate is an oxyanion.

T The empirical formula of barium sulfite is  $\text{BaSO}_3$ .

2. (4 pts) Circle the mass (in g) of  $4.16 \times 10^{24}$  atoms of neon.

94.1	98.2	103	108	112	116
124	127	133	<u>139</u>	145	148

- \*\* 3. (3 pts) In which Period is silver? 5

(3 pts) What is the symbol of the Main Group metal which has the smallest atomic number? Li

(3 pts) How many electrons are in the chloride ion? 18

- \*\* 4. (5 pts) Circle the compounds below which have a 1+ cation.

IBr

KNO<sub>3</sub>

HCl

CuSO<sub>4</sub>

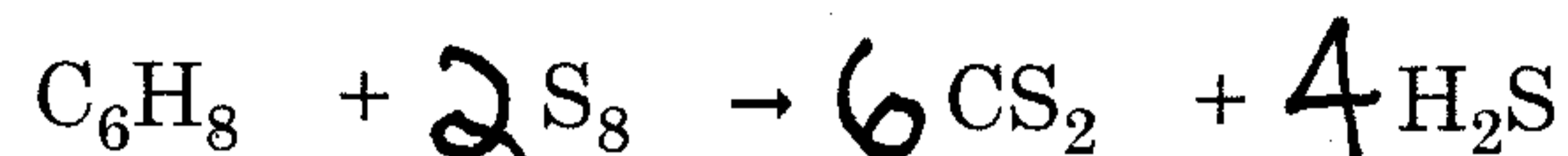
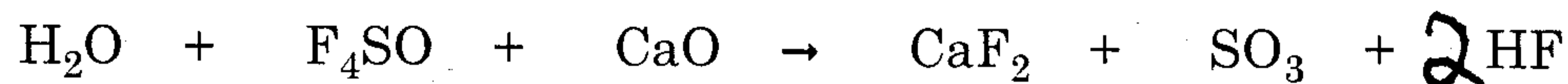
S<sub>2</sub>O

NH<sub>4</sub>F

5. (2 pts) How many elements in Period 5 are not metals? 4

(2 pts) Give the symbol of the element in the Third Period which forms a 2+ cation. Mg

6. (8 pts) Balance the following equations.



\*\* 7. (6 pts) Acetylene,  $\text{C}_2\text{H}_2$ , is used in welding applications. Circle the mass (in g) of  $\text{O}_2$  that is needed for the combustion of 18.50 g  $\text{C}_2\text{H}_2$ .

20.33	23.89	26.11	32.97	36.03	38.41
41.18	44.73	48.62	51.20	<u>56.84</u>	59.71

\*\* 8. (3 pts) Fruit sugar (fructose) has the formula  $\text{C}_6\text{H}_{12}\text{O}_6$ . How many moles are present in 19.5 g of fructose?

0.108

9. (6 pts) Give the formula for each of the following.

dioxygen difluoride



chromium(II) phosphate



10. (6 pts) The following equation is balanced.



Circle the mass (in g) of  $\text{HNO}_3$  which is needed in order to make 31.9 g of  $\text{SeO}_2$  by this reaction.

11.5	13.6	16.8	19.0	22.7	<u>24.2</u>
25.1	28.9	31.1	34.6	36.2	38.0