

**\*\*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 An atom of iron with 32 neutrons has an atomic number of 26 and a mass number of 58.
- F Tin is a metal element in Period 4.
- F Magnesium is a transition metal.
- T Potassium forms a monatomic, constant charge cation.
- F Bromine forms a monatomic anion which contains 34 electrons.
- F Hydrogen sulfide is diatomic.
- T The bonding within the phosphate ion is covalent (only).
- T An Avogadro number of chlorine atoms has a mass of 35.45 g.

2. (2 pts) Give the name of one covalent network allotrope of carbon.

diamond  
OR graphite

- (2 pts) Give the symbol of the element in Group 13 which is not a metal.

B

- (2 pts) Give the formula of one oxyanion of chlorine.

ClO<sup>-</sup>, ClO<sub>2</sub><sup>-</sup>, ClO<sub>3</sub><sup>-</sup> OR ClO<sub>4</sub><sup>-</sup>

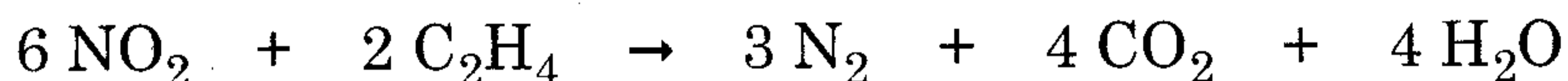
- (2 pts) Give the charge of the hydrogen arsenate ion.

2-

- \*\* 3. (3 pts) A molecule of oxygen in the air is about to collide with your face at 396.8 m/s. How fast is that in miles per hour?

887.8

4. (6 pts) The following equation is balanced.



For this reaction using 25.0 g NO<sub>2</sub>, circle the mass (in g) of CO<sub>2</sub> produced.

12.4

15.9

18.6

20.7

23.9

27.9

31.0

35.9

39.3

41.8

44.4

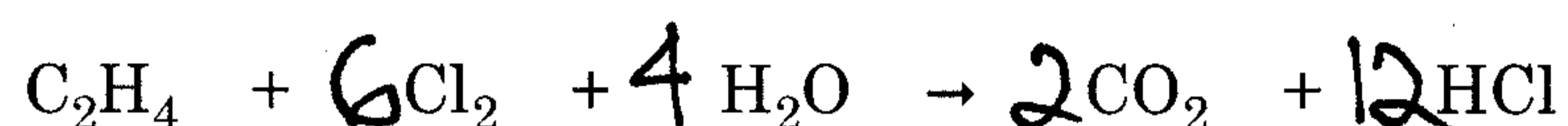
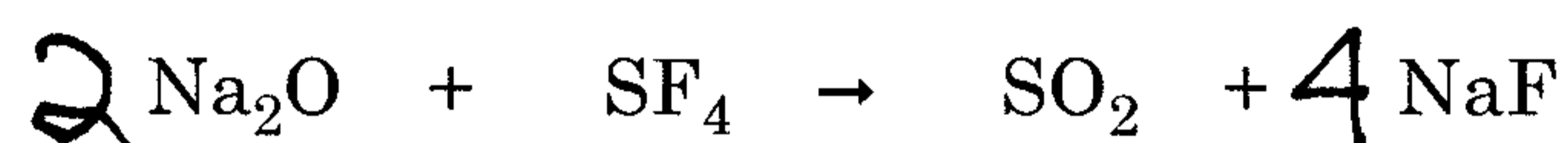
46.6

last name: FM Ex I

- \*\* 5. (3 pts) What is the molecular mass (in u) of copper(II) permanganate?

301.43

6. (8 pts) Balance the following equations.



- \*\* 7. (5 pts) A covalent compound of H, C and F is 4.48% H and 53.3% C.

What is the empirical formula? H<sub>2</sub>C<sub>2</sub>F

If the molar mass is 180.16 g/mol, what is the molecular formula? H<sub>8</sub>C<sub>8</sub>F<sub>4</sub>

8. (6 pts) Give the formula for each of the following.

dichlorine pentaoxide



nickel(II) carbonate



- \*\* 9. (3 pts) How many electrons are in an atom of <sup>40</sup>K?

19

(3 pts) In which Group is barium?

2

(3 pts) How many electrons are in one Nb<sup>2+</sup> ion?

39

(3 pts) How many electrons are in the cobalt(II) ion?

25