

Key

Class: _____ Date: _____

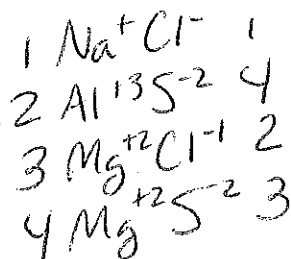
ID: A

Chemistry: Bonding Test Review

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- C 1. (#3-2) Which is not a property of ionic substances
- crystal structure
 - dissolve in water
 - never conduct electricity
 - cations + anions
 - high melting points
- C 2. (#3-3) A bond that shares electrons is
- metallic
 - ionic
 - covalent
 - polar
 - will not bond
- d 3. (#3-1) Oxygen has 6 valence electrons and, given the opportunity, will have a -2 charge.
- 8, 0
 - 6, +2
 - 2, 6
 - 6, -2
 - 6, 6
- a 4. (#3-1) NaF is a _____ bond.
- ionic
 - covalent
 - polar covalent
 - metallic
 - acid
- C 5. (#3-1) An ionic bond is a bond between _____ & _____.
- metal, metal
 - non-metal, non-metal
 - metal, non-metal
 - cations, metal
 - anions, non-metals
- C 6. (#3-1) Given the opportunity, halogens will form _____ charge
- 0
 - +1
 - 1
 - 2
 - +2
- a 7. (#3-1) In an ionic formula the first item listed is the
- metal
 - non-metal
 - anion
 - does not matter which is listed first
 - answer is not present
- a 8. (#3-3) In industry MnO_2 is named as a covalent molecule. What is the name?
- manganese dioxide
 - monomanganese oxide
 - manganese oxide
 - permanganic acid
 - hydropermanganic acid
- e 9. (#3-2) List the following salts in order from lowest to highest melting points
Sodium chloride(1), Aluminum sulfide(2), Magnesium chloride(3), and Magnesium sulfide(4)
- 1,2,3,4
 - 4,3,2,1
 - 2,1,3,4
 - 1,3,2,4
 - 1,3,4,2



1,3,4,2

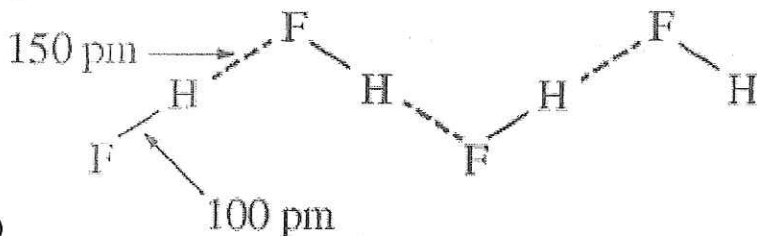
A 10. (#3-2)

	NaF	MgO
Boiling Point	1695	3600

	Na ⁺	Mg ²⁺	F ⁻	Cl ⁻	O ²⁻
Ionic Radius	76	72	133	181	140

Based on the data in the tables above, which of the following statements provides the best prediction for the boiling point of NaCl ?

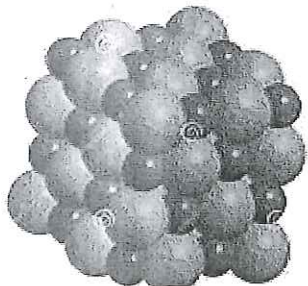
- a. NaCl will have a lower boiling point than NaF because the coulombic attractions are weaker in NaCl than in NaF .
- b. NaCl will have a boiling point between that of NaF and MgO because the covalent character of the bonds in NaCl is intermediate between that of MgO and NaF.
- c. NaCl will have a higher boiling point than MgO because the ions are spaced farther apart in NaCl
- d. NaCl will have a higher boiling point than MgO because the energy required to transfer electrons from the anion to the cation is larger in NaCl than in MgO .



B 11. (#3-4)

The figure above shows that in solid hydrogen fluoride there are two different distances between H atoms and F atoms. Which of the following best accounts for the two different distances?

- a. Accommodation of the necessary bond angles in the formation of the solid
- b. Difference in strength between covalent bonds and intermolecular attractions
- c. Different isotopes of fluorine present in the samples
- d. Uneven repulsions among non-bonding electron pairs



a 12. (#3- 1)

What type of substance is this?

- a. ionic
- b. Metal
- c. covalent
- d. mixture

- a 13. (#3-5) Which of the following substances has the highest mass percent Oxygen?
- | | |
|--------|--------|
| a. MgO | c. SrO |
| b. CaO | d. BaO |

Matching

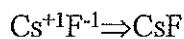
- | | |
|----------------------|----------------------------------|
| a. BeCl ₂ | d. O ₂ |
| b. SO ₂ | e. F ₂ |
| c. N ₂ | f. C ₂ H ₆ |

- b 14. (#3-4) Is a polar molecule
- b 15. (#3-3) Is best represented by two or more resonance forms
- c 16. (#3-1) Bond contains the most energy when broken or formed.
- d 17. (no standard) Required for humans to breath.
- a 18. (#3-1) An ionic compound
- f 19. (#3-3) Is an organic compound (covalent)
- e 20. (#2-4) Most reactive Halogen
- a 21. (#3-2) Has the highest melting point
- b 22. (#3-5) This substance has a high percent mass of oxygen but not 100%.

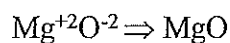
Short Answer

23. (#3-2)

Melting points of some common salts. In your own words why explain the drastic difference these examples below.



682 C



2852 C

The difference is due to Coulomb's Law. MgO has greater charge and therefore, greater Coulombic force, and require

- 24.

Provide the correct formula:

ammonium sulfide $(\text{NH}_4)_2\text{S}$ sodium chloride NaCl copper (II) acetate $\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2$ penta phosphorous decoxide P_5O_{10} ammonium carbonate $(\text{NH}_4)_2\text{CO}_3$

nitrogen pentaoxide

 NO_5

(#3-1 & #3-3)

Name of the following:

KCl potassium chloride melt.

KClO potassium hypochlorite

CuCl copper (I) chloride

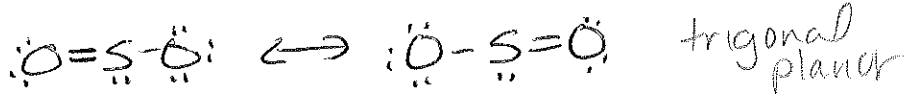
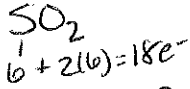
CuClO₄ copper (I) perchlorateNaNO₃ sodium nitrateCCl₄ carbon tetrachloride

25. (#3-1)

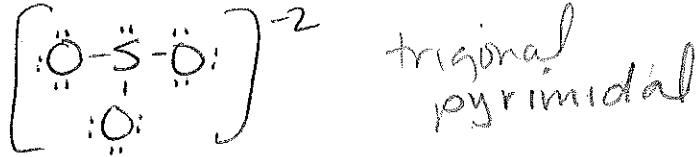
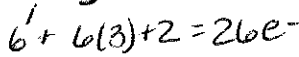
For each of the following:

Draw a Lewis dot structure with all resonance structures and give the shape of the molecule.

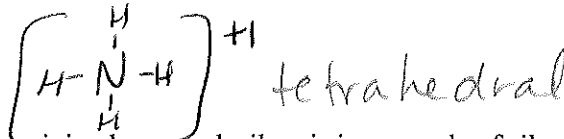
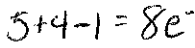
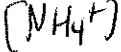
Sulfur dioxide



Sulfite SO_3^{2-}



Ammonium



26. (#3-5) A company is determining how much silver is in a sample of silver chloride.

a) What is the percent mass of silver in silver chloride?



b) What is the total silver in a 25g sample?

Essay

a) $\frac{107.9}{143.4} \times 100 = 75.2\%$

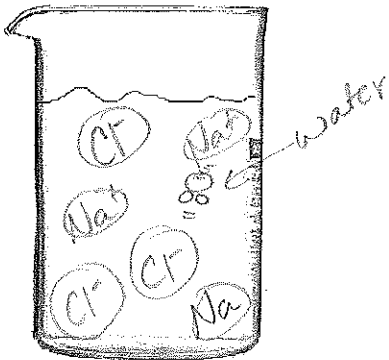
b) $\frac{75.2}{100} = \frac{x}{25g} \Rightarrow x = 18.8g Ag$

27. (#3-2 & #3-4)

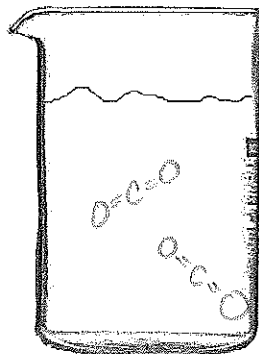
A person has three solutions, a cup of distilled water, a cup of carbonated water(CO_2), and a cup of table salt water. Only one of the solutions is electrolytic. Which one and why?

The one with table salt is electrolytic. When salts dissolve, they break into ions and can move to carry a current.

Below you will find 2 beakers. Draw the solution listed in each beaker.



NaCl



CO₂

28.

Test analysis: Fill in the test analysis standard and summary below.

Question	Standard	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24 (6 total)		
25 (3 total)		
26 (2 total)		
27	(#3-2)	
27	(#3-4)	

Summary Standard Breakdown: # of Questions

(#3-1) How do ionic bonds form?(#3-2) What are the properties of ionic compounds?(#3-3) How do covalent bonds form?(#3-4) What are the properties of a covalent bond?(#3-5) What is the difference between formulas and the percent mass of a substance.