

Topics/concepts covered on quiz:

ion	positive (meaning)	negative (meaning)
cation	anion	electronegativity
charge	oxidation number	atomic radius
four levels of stability	Lewis dot diagrams and charges from the periodic table	
noble gas electron configuration shorthand		ionic bond
chemical bond	covalent bond	metallic bond
chemical formulas and chemical names of ionic compounds		

Practice questions:

1. Predict the oxidation number of each of the following elements using a periodic table:

- | | | | |
|--------|-------|--------|-------|
| (a) P | _____ | (e) O | _____ |
| (b) Rb | _____ | (f) Mg | _____ |
| (c) I | _____ | (g) C | _____ |
| (d) Al | _____ | (h) Rn | _____ |

2. Why does an atom become smaller when it becomes a positive ion? _____

3. (a) What is bismuth's noble gas electron configuration shorthand? _____

(b) How does it form Bi^{3+} ? What would be left? Be specific!(c) How does it form Bi^{5+} ? What would be left? Be specific!(d) Which would be more stable, Bi^{3+} or Bi^{5+} ? Explain your answer.

4. Zinc only forms one oxidation number. What is it? How does it form it? Would it be considered stable?

5. Predict which atom has a **larger** atomic radius: Ba or Bi (circle one)6. Predict which atom has a **smaller** atomic radius: Mg or Ra (circle one)7. Which would be **bigger**, (a) Ga or Ga^{3+} ? (circle one) (b) N or N^{3-} ? (circle one)

8. Ge^{4+} has _____ protons and _____ electrons. F^- has _____ protons and _____ electrons.
9. (a) What element is the most electronegative? _____
(b) What elements are the least electronegative? _____
10. (a) What is one way Ca is the same as Ca^{2+} ? _____

(b) What are two ways Ca is different from Ca^{2+} ? _____

11. Is F^- different from Ne? If so, how is it? If not, why not? _____

12. Metals tend to _____ electrons and form _____ ions.
13. Non-metals tend to _____ electrons and form _____ ions.
14. What type of electrons must be gained or lost first? _____
Why? _____
15. Another word that means oxidation number is _____.
16. Why do atoms form ions? _____
17. (a) The most stable atoms are the _____
(b) Why are they the most stable? _____

18. For the following pairs of elements, decide what **type of bond** they would form, **show the bonding**, write the **formula**, and **name** the compound (if possible).
- (a) Rb and Br (c) I and Mg
- (b) C and Cl (d) Na and N