**Chemistry Review for the Unit Test**

1. Which subatomic particles are responsible for chemical bonding?

A. protons

B. electrons

C. neutrons

D. nucleons

2. What appears on the Periodic Table, in order, when reading it from left to right?

A. metals, metalloids, non-metals

B. metalloids, metals, non-metals

C. alkali metals, noble gases, halogens

D. alkali metals, halogens, alkaline earths

3. Write the chemical symbols for the following particles:

(a) fluorine atom \_\_\_\_

(b) oxygen ion \_\_\_\_

(c) oxygen molecule \_\_\_\_

(d) potassium ion \_\_\_\_\_

4. Draw Bohr diagrams for the following elements:

|  |  |  |  |
| --- | --- | --- | --- |
| Lithium atom | Carbon atom | Magnesium ion | Phosphorus ion |

5. How are ionic compounds different from covalent compounds in their composition?

6. Which of the following does *not* represent a covalent compound?

A. CO2

B. NH3

C. H2O

D. NaCl

7. First, classify each of the following compounds as ionic or covalent. Then, write the chemical formula for each compound.

|  |  |  |
| --- | --- | --- |
|  | **Ionic or covalent** | **formula** |
| (a) beryllium nitrate |  |  |
| (b) ammonium carbonate |  |  |
| (c) lead(II) fluoride |  |  |
| (d) aluminum selenide |  |  |
| (e) carbon tetrachloride |  |  |

8. First, classify each of the following compounds as ionic or molecular. Then, write the chemical name for each compound.

|  |  |  |
| --- | --- | --- |
|  | **Ionic or covalent** | **name** |
| (a) RbCl |  |  |
| (b) (NH4)3P |  |  |
| (c) N3Br6 |  |  |
| (d) Ti2O3 |  |  |
| (e) Sr3(PO4)2 |  |  |

9. Which of the following sets of ordered coefficients will correctly balance the skeleton equation below?

HBrO3 + HBr H2O + Br2

A. 1, 5, 3, 3

B. 1, 2, 1, 1

C. 2, 4, 6, 3

D. 2, 4, 3, 2

10. Which of the following factors does not increase the rates of all chemical reactions?

A. adding oxygen

B. adding a catalyst

C. increasing the concentration of reactants

D. increasing the surface area of a solid Reactant

11. Balance the following skeleton equations. Then, classify the equations according to reaction type.

**Type?**

(a) Ba + HCl BaCl2 + H2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) Al + S Al2S3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) Sr(NO3)2 + NaOH NaNO3 + Sr(OH)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(d) Mg + H3PO4 Mg3(PO4)2 + H2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(e) CaCO3 CaO + CO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(f) C10H22 + O2 CO2 + H2O \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**12.** Predict the products of the following reactions, then balance the equations. Classify the equations according to reaction type. **Type?**

(a) Ba + O2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) C5H12 **+** O2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) Ba(NO3)2 + KOH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(d) Al + ZnSO4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(e) H2SO4 + Sr(OH)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(f) NaCl \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. For the following reaction:

CaCO3 (s) + HCl (aq) CaCl2 (aq) + H2O(l) + CO2

List 3 ways in which you could make the reaction proceed faster (be specific).

a.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Describe two features of a catalyst
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_