

- (1) The reaction of baking soda and vinegar to produce carbon dioxide gas is an example of a precipitation (1 Point)
True False
- (2) Combustion reactions are a subcategory of oxidation-reduction reactions. (1 Point)
True False
- (3) Color change is evidence that a chemical reaction has occurred. (1 Point)
True False
- (4) The formation of a gas is evidence of a chemical reaction while the emission of light is not. (1 Point)
True False
- (5) Bubbles in water that appear during boiling show that a chemical reaction is occurring. (1 Point)
True False
- (6) When balancing a chemical equation you may alter the coefficients but not the subscripts in the equation. (1 Point)
True False
- (7) A strong electrolyte solution contains ionic compounds that completely dissociate in water. (1 Point)
True False
- (8) When compounds containing polyatomic ions dissolve, the polyatomic ions usually dissolve as intact units. (1 Point)
True False
- (9) Li^+ , Na^+ , K^+ and NH_4^+ compounds are soluble. (1 Point)
True False
- (10) Cl^- , Br^- , and I^- are mostly insoluble. (1 Point)
True False
- (11) A net ionic equation shows all ionic species that are present in solution. (1 Point)
True False
- (12) A spectator ion is one that does not actively participate in a chemical reaction. (1 Point)
True False
- (13) One of the characteristics of an acid-base reaction is that this type of reaction forms water. (1 Point)
True False
- (14) An oxidation-reduction reaction must involve reaction with oxygen. (1 Point)
True False
- (15) Combustion reactions absorb heat and so can be classified as endothermic. (1 Point)
True False
- (16) Decomposition reactions usually require energy to initiate the reaction. (1 Point)
True False
- (17) A reaction which forms a gaseous product is an example of a(n)_____. (2 Points)
A) oxidation-reduction reaction
B) combustion reaction
C) precipitation reaction
D) gas evolution reaction
E) none of the above

(18) A reaction in which a substance reacts with oxygen, emitting heat and forming oxygen-containing compounds is an example of a(n) (2 Points)

- A) acid-base reaction.
- B) combustion reaction.
- C) precipitation reaction.
- D) gas evolution reaction.
- E) none of the above

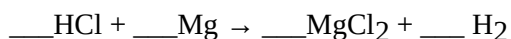
(19) Which of the following statements about balancing reactions is FALSE? (2 Points)

- A) If there is no coefficient or subscript, a one is implied.
- B) When coefficients are added the type of compounds is changed in the chemical reaction.
- C) Subscripts are multiplied by the coefficients to determine the number of atoms in a compound.
- D) Coefficients are added to compounds to ensure both sides of the reaction have equal numbers of each atom.
- E) All of the above statements are true.

(20) When the equation, $__\text{N}_2 + __\text{H}_2 \rightarrow __\text{NH}_3$ is balanced, the coefficient of hydrogen is: (2 Points)

- A) 1
- B) 2
- C) 3
- D) 4
- E) none of the above

(21) What are the coefficients for the following reaction when it is properly balanced? (2 Points)



- A) 2, 1, 1, 1
- B) 2, 1, 2, 2
- C) 1, 2, 1/2, 1
- D) 1, 1, 1, 2
- E) none of the above

(22) Which of the following equations is NOT balanced properly? (2 Points)

- A) $2\text{Cr} + 6\text{HCl} \rightarrow 2\text{CrCl}_3 + 3\text{H}_2$
- B) $2\text{NaHCO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{CO}_2 + \text{H}_2\text{O}$
- C) $\text{Cr}_2(\text{SO}_4)_3 + 6\text{KOH} \rightarrow 2\text{Cr}(\text{OH})_3 + 3\text{K}_2\text{SO}_4$
- D) $4\text{NH}_3 + 14\text{O}_2 \rightarrow 4\text{NO}_2 + 6\text{H}_2\text{O}$
- E) none of the above

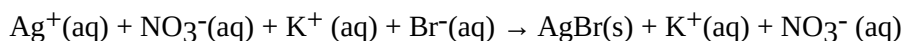
(23) An aqueous solution is: (2 Points)

- A) any liquid with another compound dissolved in it.
- B) an ionic compound with water dissolved in it.
- C) water with a molecular compound dissolved in it.
- D) water with another compound dissolved in it.
- E) none of the above

(24) The compound sodium sulfate is soluble in water. When this compound dissolves in water, which ion listed below would be present in solution? (2 Points)

- A) SO_4^{2-}
- B) S^{2-}
- C) O^{2-}
- D) Na_2^{2+}
- E) none of the above

(25) Which is a spectator ion from the following complete ionic equation: (2 Points)



- A) Ag^+
- B) Br^-
- C) K^+
- D) AgBr
- E) none of the above

(26) What type of reaction is the generic equation $\text{A} + \text{B} \rightarrow \text{AB}$? (2 Points)

- A) synthesis/combination
- B) decomposition
- C) single displacement
- D) double-displacement
- E) none of the above

(27) What type of reaction is the generic equation $\text{A} + \text{BC} \rightarrow \text{AC} + \text{B}$? (2 Points)

- A) synthesis/combination
- B) decomposition
- C) single displacement
- D) double-displacement
- E) none of the above

(28) What type of reaction is the generic equation $\text{AB} + \text{CD} \rightarrow \text{AD} + \text{CB}$? (2 Points)

- A) synthesis/combination
- B) decomposition
- C) single displacement
- D) double-displacement
- E) none of the above