Chemistry CP
Chapter 7 Quiz #1

Name: Key

Explain the following in your own words. (1 point each)

1. What does a **driving force** do?

Cause a reaction to occur

2. What is a **precipitate**?

the solid formed

3. What is a **precipitation reaction**?

a reaction that forms a solid

4. What is **precpitation**?

the act of forming a solid from 2 aqueous solutions

Name the four driving forces for reactions that we discussed in Chapter 7. (1 point each)

5. Formation of a solid
6. formation of water
7. Transfer of electrons
8. formation of a gas

Answer the following with a word or phrase. (1 point each)

9. What is the driving force of a PRECIPITATION reaction?

formation of a solid

10. What is a STRONG ELECTROLYTE?

an ionic compound that dissolves completely in water producing separate ions

11. What is the underlying reason that causes reactions to occur?

achievement of a more stable, less energy consuming state.

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Determine the solubility of the following compounds in water. Circle the correct response.

12. AgCl — SOLUBLE — (INSOLUBLE)

13. Na_2CO_3 — (SOLUBLE) — INSOLUBLE

14. BaS — SOLUBLE — (INSOLUBLE)

15. $CaCl_2$ — (SOLUBLE) — INSOLUBLE

16. Na_2S — (SOLUBLE) — INSOLUBLE

17. $BaSO_4$ — SOLUBLE — (INSOLUBLE)

Predict the products, **determine and record** the solubility of each product, and **indicate** if the reaction occurs or not by circling the proper choice for the following possible precipitation reactions. (3 points each)

18. $Pb(NO_3)_2$ (aq) + KCl (aq) → $PbCl_2$ (s) + KNO_3

(REACTION OCCURS) NO REACTION

19. Na_2S (aq) + $(NH_4)_3PO_4$ (aq) → Na_3PO_4 (aq) + $(NH_4)_2S$ (aq)

REACTION OCCURS (NO REACTION)

20. Na_2CO_3 (aq) + $Ba(NO_3)_2$ (aq) → $NaNO_3$ (aq) + $BaCO_3$ (s)

(REACTION OCCURS) NO REACTION

21. $Hg(NO_3)_2$ (aq) + NaCl (aq) → $HgCl_2$ (s) + $NaNO_3$ (aq)

(REACTION OCCURS) NO REACTION

22. Na_2SO_4 (aq) + $Ba(OH)_2$ (aq) → $NaOH$ (aq) + $BaSO_4$ (s)

(REACTION OCCURS) NO REACTION

23. $(NH_4)_3PO_4$ (aq) + $Ba(NO_3)_2$ (aq) → NH_4NO_3 (aq) + $Ba_3(PO_4)_2$ (s)

(REACTION OCCURS) NO REACTION

Chemistry CP
Chapter 7 Quiz #2

Name: Key

Explain the following in your own words. (1 point each)

1. What does a **driving force** do?

   Causes a reaction to occur

2. What is an **acid**?

   a substance that produces H^+ ion (or hydrogen ion) when dissolved in water.

3. What is a **base**?

   a substance that produces OH^- ion (or hydroxide ion) when dissolved in water.

When electrons are transferred in a reaction, what 2 processes are occurring at the same time?

4. Oxidation

5. reduction

6. Gain of electrons is known as reduction.

7. Loss of electrons is known as oxidation.

8. When a reaction forms a gas what other **two** driving forces might also be helping to cause the reaction. (half point each)

   formation of water, transfer of electrons

Name the four driving forces for reactions that we discussed in Chapter 7. (1 point each)

9. formation of a solid
10. formation of a gas
11. formation of water
12. transfer of electrons

Chemistry CP
Chapter 7 Quiz #2

Name: Key

Answer the following with a word or phrase. (1 point each)

13. If a reaction is termed a "REDOX" reaction, then the driving force is the transfer of electrons.

14. An "ACID-BASE" reaction results in the formation of water.

15. A net ionic equation shows only those chemical species that are actively participating.

For the following precipitation reaction write the COMPLETE IONIC EQUATION. (4 points)

16. K_3PO_4 (aq) + $ZnCl_2$ (aq) → KCl (aq) + $Zn_3(PO_4)_2$ (s)

$K^{+1}_{(aq)} + PO_4^{-3}{}_{(aq)} + Zn^{+2}_{(aq)} + Cl^{-1}_{(aq)} \rightarrow K^{+1}_{(aq)} + Cl^{-1}_{(aq)} + Zn_3(PO_4)_{2(s)}$

17. K_2CO_3 (aq) + $AlCl_3$ (aq) → KCl (aq) + $Al_2(CO_3)_3$ (s)

$K^{+1}_{(aq)} + CO_3^{-2}{}_{(aq)} + Al^{+3}_{(aq)} + Cl^{-1}_{(aq)} \rightarrow K^{+1}_{(aq)} + Cl^{-1}_{(aq)} + Al_2(CO_3)_{3(s)}$

For the following precipitation reaction, write the NET IONIC EQUATION. (3 points)

18. NaOH (aq) + $Pb(NO_3)_2$ (aq) → $NaNO_3$ (aq) + $Pb(OH)_2$ (s)

$Pb^{+2}_{(aq)} + OH^{-1}_{(aq)} \rightarrow Pb(OH)_{2(s)}$

19. $AgNO_3$ (aq) + KCl (aq) → AgCl (s) + KNO_3 (aq)

$Ag^{+1}_{(aq)} + Cl^{-1}_{(aq)} \rightarrow AgCl_{(s)}$

Predict the products for the following reactions. Circle the product that is the salt. (2 points each)

20. KOH (aq) + H_2SO_4 (aq) → $H_2O(l)$ + K_2SO_4 (aq)

21. HNO_3 (aq) + NaOH (aq) → $NaNO_3$ (aq) + $H_2O(l)$

Chemistry CP
Chapter 7 Quiz #2

Name: Key

For the following acid-base reaction, write the NET IONIC EQUATION. (3 points)

22. HNO_3 (aq) + KOH (aq) → H_2O (l) + KNO_3 (aq)

$H^{+1}(aq) + OH^{-1}(aq) \rightarrow H_2O(l)$

Circle the substance being oxidized in the following unbalanced equation.

23. Al (s) + O_2 (g) → Al_2O_3 (s)

Circle the substance being reduced in the following unbalanced equation.

24. Fe + Cl_2 → $FeCl_3$ (s)

For the following unbalanced reactions identify the type of reaction based on what is happening. Each choice is used only once. Your possible choices are: COMBUSTION, DECOMPOSTION, DOUBLE DISPLACEMENT, SINGLE DISPLACEMENT, SYNTHESIS.

25. $Pb(NO_3)_2$ (aq) + KCl (aq) → KNO_3 (aq) + $PbCl_2$ (s) Double Displacement

26. C_2H_8 (g) + O_2 (g) → CO_2 (g) + H_2O (g) Combustion

27. Fe (g) + O_2 (g) → Fe_2O_3 (g) Synthesis

28. Al (s) + $ZnCl_2$ (aq) → Zn (s) + $AlCl_3$ (aq) Single displacement

29. $CaCO_3$ (s) → CaO (s) + CO_2 (g) decomposition

For each of the following reactions identify **two** driving forces for the reaction. (2 pts each)

30. Mg(s) + HCl (aq) → $MgCl_2$ (aq) + H_2 (g)

formation of a gas
transfer of electrons

31. H_2CO_3 (l) → H_2O (l) + CO_2 (g)

formation of water
formation of a gas