Unit 5 Review Packet

Key

Name: _____

B 1) An example of a binary compound is Do not worry about this one!
A) mercury Hg (B) ammonia NH_3 C) ethanol C_2H_5OH D) sodium Na

C 2) A binary compound of sodium is
A) sodium chlorate $NaClO_3$ (C) sodium chloride NaCl
B) sodium perchlorate $NaClO_4$ D) sodium chlorite $NaClO_2$

A 3) Which of the following is the formula of a binary compound? M to NM
(A) $MgCl_2$ B) $Mg(ClO)_2$ C) $BiPO_4$ D) $BaSO_4$

D 4) Given the equation:

$$2Na + 2H_2O \longrightarrow 2NaOH + H_2$$

What substance in this equation is a binary compound? 2 elements.
A) H_2 B) NaOH C) Na (D) H_2O

D 5) What is the chemical formula for nitrogen (I) oxide? $N^{+1}\ O^{-2}$ N_2O
A) NO B) NO_2 C) N_2O_4 (D) N_2O

C 6) What is the formula for lead (II) oxide? $Pb^{+2}\ O^{-2}$
A) Pb_2O_3 B) PbO_2 (C) PbO D) Pb_2O

B 7) What is the correct formula for potassium oxide? $K^{+1}\ O^{-2}$
A) P_2O (B) K_2O C) PO_2 D) KO_2

C 8) What is the formula for potassium hydride? $K^{+1}\ H^{-1}$
A) KH_2 B) $K(OH)_2$ (C) KH D) KOH

A 9) What is the formula for titanium (III) oxide? $Ti^{+3}\ O^{-2} \Rightarrow Ti_2O_3$
(A) Ti_2O_3 B) TiO C) Ti_2O_4 D) Ti_3O_2

A 10) What is the formula for nitrogen (IV) oxide? $N^{+4}\ O^{-2}$ NO_2
(A) NO_2 B) NO_3 C) NO_4 D) NO

B 11) Which formula is correctly paired with its name?
~~A) FeO — iron (III) oxide~~ ~~C) K_2O — phosphorus dioxide~~
(B) $CuCl_2$ — copper (II) chloride ~~D) $MgCl_2$ — magnesium chlorine~~

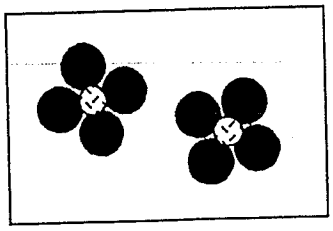
D 12) An atom represented by *X* forms a compound with the formula X_3N_2. The atom could be needs a +2 charge.
A) Cs B) Al C) Na (D) Mg

A 13) What is the name of the compound whose formula is N_2O_5? $+5\ -2$
(A) nitrogen (V) oxide C) nitrogen (II) oxide
B) nitrogen (III) oxide D) nitrogen (IV) oxide

C

D 14) If ● represents an atom of carbon and ⊗ represents an atom of fluorine, which particle diagram correctly represents a molecule of carbon (IV) fluoride? CF_4

A)



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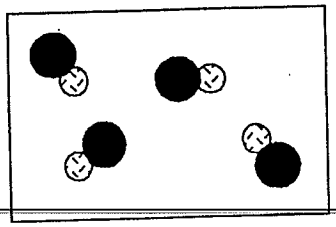

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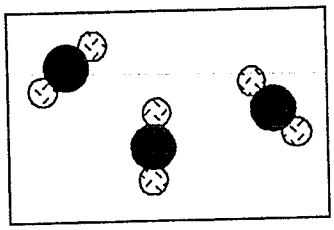

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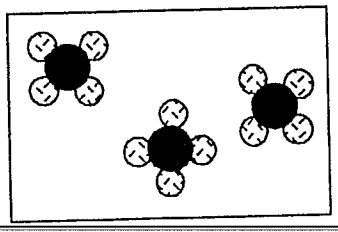
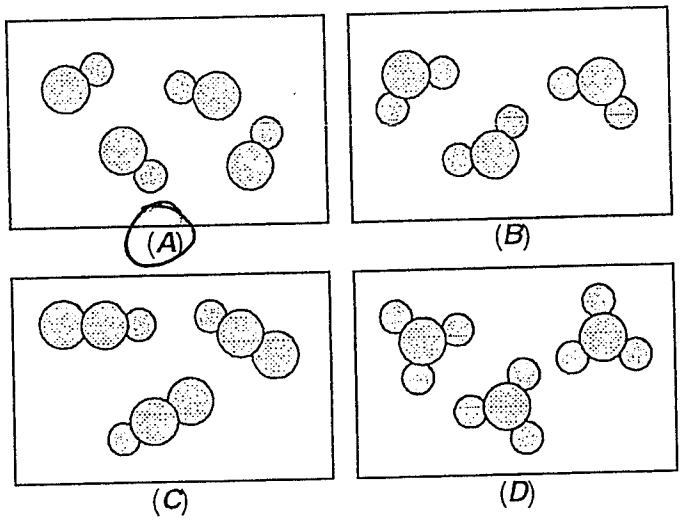


A 15) In the particle diagrams below, ⊙ represents an atom of nitrogen and ⊙ represents an atom of oxygen.

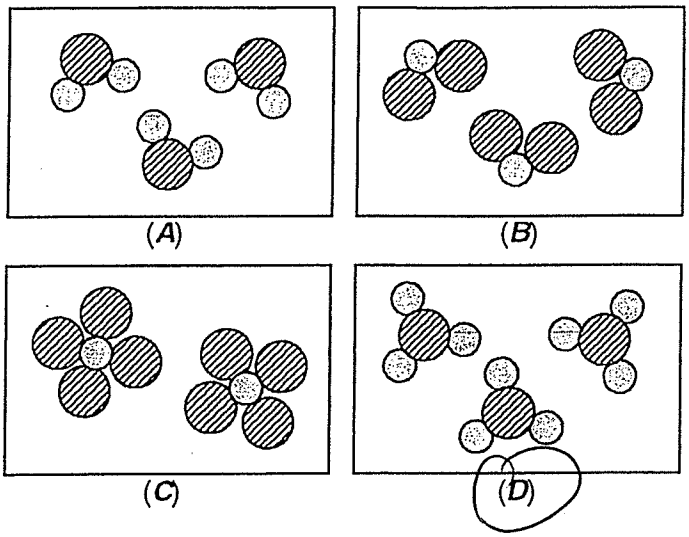


Which diagram *best* represents the compound nitrogen (II) oxide? NO

A) *A* B) *B* C) *C* D) *D*

D.

16) In the particle diagrams below, ◯ represents an atom of sulfur and ◯ represents an atom of oxygen.



+6 -2
S O SO_3

Which diagram *best* represents the compound sulfur (VI) oxide?

A) *A* B) *B* C) *C* D) *D*

A 17) What is the correct name for the compound with the formula $CrPO_4$?

A) chromium (III) phosphate
B) chromium (II) phosphate
C) chromium (II) phosphide
D) chromium (III) phosphide

D 18) What is the formula for sodium oxalate?

A) $NaC_2H_3O_2$ B) Na_2O C) NaClO D) $Na_2C_2O_4$

C 19) Which formula correctly represents the compound calcium hydroxide?

A) CaOH B) Ca_2OH C) $Ca(OH)_2$ D) $CaOH_2$

C 20) What is the formula for ammonium carbonate?

A) NH_4CO_3
B) $(NH_4)_2(CO_3)_2$
C) $(NH_4)_2CO_3$
D) $NH_4(CO_3)_2$

B 21) What is the formula for sodium perchlorate? $Na^+ ClO_4^{-1}$

A) NaClO B) $NaClO_4$ C) $NaClO_3$ D) $NaClO_2$

C 22) What is the chemical formula for nickel (II) hypochlorite? Ni^{+2} ClO^- $Ni(ClO)_2$

A) $NiCl_2$ B) $NiClO_2$ C) $Ni(ClO)_2$ D) $Ni(ClO)_3$

A 23) An example of an empirical formula is reduced.

A) $CaCl_2$ B) C_2Cl_2 C) H_2O_2 D) C_2H_2

B 24) Which of the following is an empirical formula? ⇒ reduced.

A) H_2O_2 B) HCl C) N_2O_4 D) C_6H_6

A 25) The molecular formula of a compound is represented by X_3Y_6. What is the empirical formula of this compound?

A) XY_2 B) X_3Y XY_2 C) X_2Y D) XY_3

C 26) In the compound Al_2O_3, the ratio of aluminum to oxygen is

A) 2 grams of aluminum to 3 grams of oxygen
B) 3 grams of aluminum to 2 grams of oxygen
C) 2 moles of aluminum to 3 moles of oxygen
D) 3 moles of aluminum to 2 moles of oxygen

B 27) The formula H_2 represents one NM to NM

A) liter B) molecule C) gram D) atom

3

D 28) The formula N_2O_4 is an example of ⇒ not reduced.

A) an empirical formula
B) a structural formula
C) an ionic formula
D) a molecular formula

D 29) Which represents *both* an empirical and molecular formula?

A) N_2O_4 B) C_3H_6 C) $C_6H_{12}O_6$ D) P_2O_5

C 30) A chemical formula is an expression used to represent

A) mixtures, only
B) compounds, only
C) compounds and elements ↗ can be used for diatomics (ex. Br_2)
D) elements, only

A 31) What is the total number of atoms represented in the formula $CuSO_4 \cdot 5H_2O$? 1 Cu + 1S + 4O + 10H + 5O.

A) 21 B) 13 C) 27 D) 8

B 32) How many atoms of oxygen are represented by the formula $Al_2(SO_4)_3$? H(3) = 12

A) 7 B) 12 C) 3 D) 4

C 33) What is the name of the compound whose formula is H_2SO_4? ate → ic

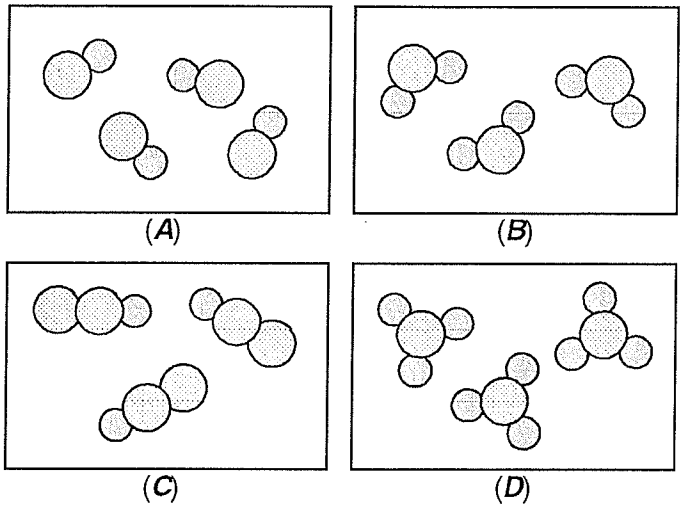
A) hydrosulfurous acid
B) sulfurous acid
C) sulfuric acid
D) hydrosulfuric acid

Key

C 34) An example of a binary (two elements) compound is

A) potassium chlorate $KClO_3$
B) ammonium chloride NH_4Cl
C) potassium chloride KCl
D) ammonium chlorate NH_4ClO_3

C 35) In the particle diagrams below, ○ (N) represents an atom of nitrogen and ○ (O) represents an atom of oxygen.

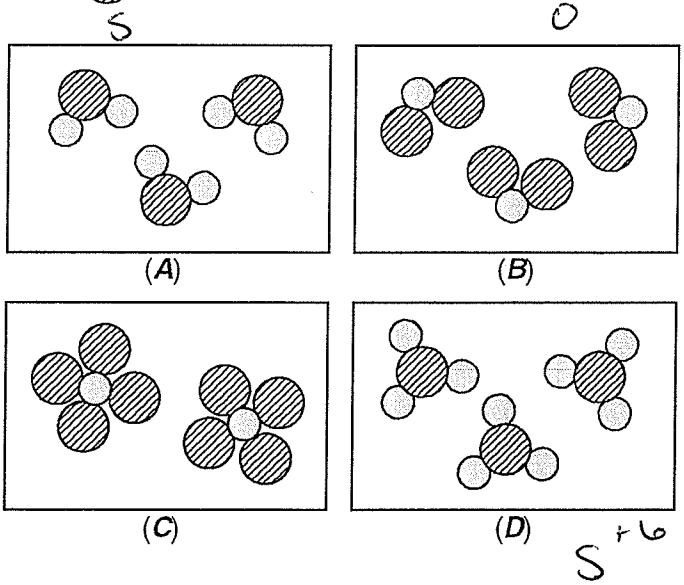


Which diagram best represents the compound nitrogen (I) oxide?

N^{+1} O^{2-} ⇒ N_2O

A) *A* B) *B* C) *C* D) *D*

D 36) In the particle diagrams below, ○ (S) represents an atom of sulfur and ○ (O) represents an atom of oxygen.



SO_3

S^{+6} O^{2-}

Which diagram *best* represents the compound sulfur (VI) oxide?

A) *A* B) *B* C) *C* D) *D*

D 37) What is the chemical formula for mercury (I) chloride?

A) Hg_2Cl B) Hg_2Cl_4 C) $HgCl_2$ D) Hg_2Cl_2

PAI

Hg_2^{+2} Cl^{-1}

5

C 38) What is the chemical formula for nitrogen (I) oxide? $N^{+1}\ O^{2-}$

A) NO_2 B) NO C) N_2O D) N_2O_4

B 39) What is the correct chemical formula for iron (III) oxide? $Fe^{+3}\ O^{2-}$

A) Fe_3O B) Fe_2O_3 C) FeO_3 D) Fe_3O_2

B 40) What is the correct formula for sodium oxide? $Na^{+1}\ O^{2-}$

A) S_2O B) Na_2O C) SO_2 D) NaO_2

A 41) What is the formula for potassium hydride?

A) KH $K^{+1}\ H^{-1}$ C) $K(OH)_2$

B) KOH D) KH_2

B 42) What is the formula for magnesium sulfide? $Mg^{+2}\ S^{-2}$

A) $MnSO_3$ B) MgS C) $MgSO_3$ D) MnS

D 43) What is the formula for nitrogen (IV) oxide? $N^{+4}\ O^{2-}$

A) NO_3 B) NO C) NO_4 D) NO_2

A 44) Which formula is correctly paired with its name?

A) $CuCl_2$ — copper (II) chloride C) $MgCl_2$ — magnesium chlor~~ine~~ ide

B) FeO — iron ~~(III)~~ (II) oxide D) K_2O — phosphorus ~~dioxide~~ potassium oxide

D 45) What is the formula for the compound that forms when magnesium bonds with phosphorus? $Mg^{+2}\ P^{3-}$

A) MgP_2 B) Mg_2P C) Mg_2P_3 D) Mg_3P_2

D 46) An atom represented by X forms a compound with the formula X_3N_2. The atom could be

A) Al +3 B) Cs +1 C) Na +1 has a +2 charge D) Mg +2

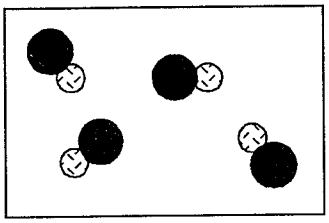
C 47) The correct name of the compound with the formula PbO_2 is $^{+4,-2}$ lead(IV) oxide

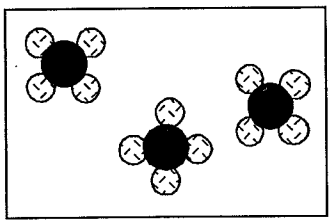
A) lead (II) oxide C) lead (IV) oxide

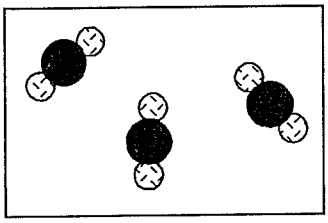
B) lead (I) oxide D) lead (III) oxide

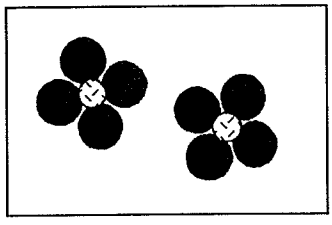
C 48) If ● represents an atom of carbon and ⊗ represents an atom of fluorine, which particle diagram correctly represents a molecule of carbon (IV) fluoride?

CF_4

A) 

C) 

B) 

D) 

A 49) What is the correct name for the compound with the formula $CrPO_4$? (+3, -3)

A) chromium (III) phosphate
B) chromium (III) phosphide
C) chromium (II) phosphide
D) chromium (II) phosphate

needs roman numerals b/c it has multiple charges

A 50) What is the formula for sodium thiosulfate? Na^{+1} $S_2O_3^{-2}$

A) $Na_2S_2O_3$
B) $Na_2S_2O_4$
C) Na_2SO_3
D) Na_2SO_4

D 51) What is the chemical formula for copper (II) chlorate? Cu^{+2} ClO_3^{-1} $Cu(ClO_3)_2$

A) $CuCl_2$
B) Cu_2Cl
C) Cu_2ClO_3
D) $Cu(ClO_3)_2$

B 52) Which formula correctly represents the compound calcium hydroxide? Ca^{+2} OH^{-1} $Ca(OH)_2$

A) Ca_2OH
B) $Ca(OH)_2$
C) $CaOH$
D) $CaOH_2$

PAI

D 53) What is the formula for ammonium carbonate? NH_4^{+1} CO_3^{-2} Table E

A) $NH_4(CO_3)_2$
B) NH_4CO_3
C) $(NH_4)_2(CO_3)_2$
D) $(NH_4)_2CO_3$

C 54) What is the formula for sodium perchlorate? Na^{+1} ClO_4^{-1}

A) $NaClO_2$
B) $NaClO$
C) $NaClO_4$
D) $NaClO_3$

B 55) In a sample of solid $Ba(NO_3)_2$, the ratio of barium ions to nitrate ions is (1, 2)

A) 1:3
B) 1:2
C) 1:6
D) 1:1

A 56) The correct formula for the thiosulfate ion is PAI

A) $S_2O_3^{2-}$
B) SCN^-
C) SO_4^{2-}
D) SO_3^{2-}

C 57) What is the name of the compound whose formula is H_2SO_4? sulfate

A) sulfurous acid
B) hydrosulfurous acid
C) sulfuric acid
D) hydrosulfuric acid

sulfuric acid

Key

Name: _____

Chem R: Unit 5 Review

Name the following compounds:

1) $SrCO_3$ strontium carbonate

2) HNO_2 (aq) nitrous acid

3) $\overset{+3}{P_2}\overset{-2}{O_3}$ diphosphorus trioxide OR phosphorus (III) oxide

4) $FePO_4$ iron (III) phosphate

5) $\overset{+4}{C}\overset{-1}{Cl_4}$ carbon tetrachloride OR carbon (IV) chloride

6) LiBr lithium bromide

7) $\overset{+1}{N_2}\overset{-2}{O}$ dinitrogen monoxide OR nitrogen (I) oxide

8) $CuSO_4 \cdot 5H_2O$ copper (II) sulfate pentahydrate

9) $CuC_2H_3O_2$ copper (I) acetate

10) H_2SO_4 (aq) sulfuric acid

11) PbS lead (II) sulfide

12) $Ba(OH)_2$ barium hydroxide

13) $Ni(NO_3)_2$ nickel (II) nitrate

14) $HC_2H_3O_2$ (aq) acetic acid

15) Al_2S_3 aluminum sulfide

16) $Ca(ClO_3)_2$ calcium chlorate

17) $HClO_4$ (aq) perchloric acid

18) $CuCl_2 \cdot 2H_2O$ copper (II) chloride dihydrate

Write the formulas for the following compounds:

19) dihydrogen monoxide H_2O

20) disulfur trioxide S_2O_3

21) lead (IV) sulfate $Pb(SO_4)_2$ Pb^{+4} SO_4^{-2}

22) lithium nitrite $LiNO_2$ Li^{+1} NO_2^{-1}

23) sodium hydroxide $NaOH$ Na^{+1} OH^{-1}

24) chromic (ate) acid $H_2CrO_4(aq)$ H^{+1} CrO_4^{-2}

25) chromium (II) sulfide CrS Cr^{+2} S^{-2}

26) oxygen difluoride OF_2

27) magnesium phosphate $Mg_3(PO_4)_2$ Mg^{+2} PO_4^{-3}

28) manganese (II) nitrate $Mn(NO_3)_2$ Mn^{+2} NO_3^{-1}

29) calcium chloride $CaCl_2$ Ca^{+2} Cl^{-1}

30) cobalt (II) chlorite $Co(ClO_2)_2$ Co^{+2} ClO_2^{-1}

31) carbon tetrahydride CH_4

32) hypochlorous acid $HClO(aq)$ H^+ ClO^-

33) iron (III) hydroxide $Fe(OH)_3$ Fe^{+3} OH^{-1}

34) beryllium sulfate tetrahydrate $BeSO_4 \cdot 4H_2O$

35) copper(I) sulfide hexahydrate $Cu_2S \cdot 6H_2O$

Formula Writing Practice

Write the proper formulas for the following compounds:

1) copper (II) acetate $Cu(C_2H_3O_2)_2$ Cu^{+2} $C_2H_3O_2^{-1}$
2) sodium hydroxide $NaOH$ Na^{+1} OH^{-1}
3) dinitrogen pentoxide N_2O_5
4) cobalt (III) carbonate $Co_2(CO_3)_3$ Co^{+3} CO_3^{-2}
5) aluminum sulfide Al_2S_3 Al^{+3} S^{-2}
6) ammonium cyanide NH_4CN NH_4^{+1} CN^{-1}
7) iron (III) phosphide FeP Fe^{+3} P^{-3}
8) sulfur pentoxide SO_5
9) nitrogen trifluoride NF_3
10) manganese (III) fluoride MnF_3 Mn^{+3} F^{-1}
11) lithium arsenide Li_3As Li^{+1} As^{-3}
12) chromium (VI) sulfate $Cr(SO_4)_3$ Cr^{+6} SO_4^{-2}
13) calcium bromide $CaBr_2$ Ca^{+2} Br^{-1}
14) beryllium chloride $BeCl_2$ Be^{+2} Cl^{-1}
15) copper (II) oxide CuO Cu^{+2} O^{-2}
16) tetraphosphorus trisulfide P_4S_3
17) aluminum carbonate $Al_2(CO_3)_3$ Al^{+3} CO_3^{-2}
18) carbon tetraiodide CI_4
19) magnesium acetate $Mg(C_2H_3O_2)_2$ Mg^{+2} $C_2H_3O_2^{-1}$
20) nickel (III) cyanide $Ni(CN)_3$ Ni^{+3} CN^{-1}
21) nitrogen monoxide NO
22) phosphorus tribromide PBr_3

23) cobalt (III) sulfide Co_2S_3 Co^{+3} S^{-2}

24) iron (II) sulfite $FeSO_3$ Fe^{+2} SO_3^{-2}

25) copper (II) nitrite $Cu(NO_2)_2$ Cu^{+2} NO_2^{-1}

26) barium permanagate $Ba(MnO_4)_2$ Ba^{+2} MnO_4^{-1}

27) chromium (II) nitride Cr_3N_2 Cr^{+2} N^{-3}

28) potassium phosphide K_3P K^{+1} P^{-3}

29) sodium thiocyanate $NaSCN$ Na^{+1} SCN^{-1}

30) sodium nitrate $NaNO_3$ Na^{+1} NO_3^{-1}