Chapter 9 Practice Test - Naming and Writing Chemical Formulas

Matching

Match each itme with the correct statement below.

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- a. monatomic ion
- b. acid
- c. base
- d. law of definite proportions
- e. law of multiple proportions
- 1. consists of a single atom with a positive or negative charge
- 2. atom or group of atoms having a negative charge
- 3. atom or group of atoms having a positive charge
- 4. tightly-bound group of atoms that behaves as a unit and carries a net charge
- _____ 5. compound composed of two different elements
- 6. produces a hydrogen ion when dissolved in water
- _____ 7. produces a hydroxide ion when dissolved in water
- 8. In any chemical compound, the masses of elements are always in the same proportion by mass.
- 9. when two elements form more than one compound, the masses of one element that combine with the same mass of the other element are in the ratio of small, whole numbers

f. cation

h. anion

i.

g. binary compound

polyatomic ion

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 10. When naming a transition metal ion that can have more than one common ionic charge, the numerical value of the charge is indicated by a _____.
 - a. prefix

c. Roman numeral following the name

b. suffix

- d. superscript after the name
- _____ 11. Which of the following correctly provides the name of the element, the symbol for the ion, and the name of the ion?
 - a. fluorine, F⁺, fluoride ion c. copper, Cu⁺, cuprous ion
 - b. zinc, Zn²⁺, zincate ion d. sulfur, S²⁻, sulfurous ion
- _____ 12. The nonmetals in Groups 6A and 7A _____.
 - a. lose electrons when they form ions
 - b. have a numerical charge that is found by subtracting 8 from the group number
 - c. all have ions with a ⁻¹ charge
 - d. end in -ate

a. iron(III) ion

- _____ 13. Which of the following is NOT a cation?
- c. Ca²⁺
- b. sulfate d
- d. mercurous ion

 14.	An <i>-ate</i> or <i>-ite</i> at the end of a compound namea. fewer electrons than protonsb. neutral molecules	usua c. d.	ally indicates that the compound contains only two elements a polyatomic anion
 15.	Which of the following is true about the composed of anions and cations.b. They are composed of anions only.c. They are composed of cations only.d. They are formed from two or more nonmet	ositio	on of ionic compounds? c elements.
 16.	Which element, when combined with fluorine,a. lithiumb. carbon	wou c. d.	ald most likely form an ionic compound? phosphorus chlorine
 17.	Which of the following compounds contains tha. PbOb. PbCl₄	e lea c. d.	ad(II) ion? Pb ₂ O Pb ₂ S
 18.	What is the correct formula for potassium sulfi a. KHSO ₃ b. KHSO ₄	te? c. d.	$K_2 SO_3$ $K_2 SO_4$
 19.	What type of compound is CuSO ₄ ? a. monotomic ionic b. polyatomic covalent	c. d.	polyatomic ionic binary molecular
 20.	Sulfur hexafluoride is an example of aa. monatomic ionb. polyatomic ion	c. d.	binary compound polyatomic compound
 21.	Molecular compounds are usually a. composed of two or more transition element b. composed of positive and negative ions c. composed of two or more nonmetallic elem d. exceptions to the law of definite proportion	nts nent 1s	S
 22.	In naming a binary molecular compound, the n indicated by a. Roman numerals b. superscripts	umb c. d.	per of atoms of each element present in the molecule is prefixes suffixes
 23.	Consider a mystery compound having the form two elements, and if M is not a metal, which of a. It contains a polyatomic ion. b. Its name ends in <i>-ite</i> or <i>-ate</i> .	ula f the c. d.	$M_x T_y$. If the compound is not an acid, if it contains only following is true about the compound? Its name ends in <i>-ic</i> . It is a binary molecular compound.
 24.	When dissolved in water, acids producea. negative ionsb. polyatomic ions	c. d.	hydrogen ions oxide ions
 25.	When naming acids, the prefix <i>hydro-</i> is used va. <i>-ide</i>	whei c.	n the name of the acid anion ends in -ate

	b. <i>-ite</i>	d.	-ic
 26.	What is the name of H ₂ SO ₃ ? a. hyposulfuric acid b. hydrosulfuric acid	c. d.	sulfuric acid sulfurous acid
 27.	When the name of an anion that is part of an ac	id e	nds in -ite, the acid name includes the suffix
	aous	с.	-ate
	$D\mathcal{IC}$	a.	-tte
 28.	What is the formula for hydrosulfuric acid?		
	a. H_2S_2	c.	HSO ₂
	b. H_2SO_2	d.	H ₂ S
 29.	What is the correct name for the compound Co	Cl ₂	?
	a. cobalt(I) chlorate	с.	cobalt(II) chlorate
	b. cobalt(I) chloride	d.	cobalt(II) chloride
30.	What is the correct formula for barium chlorate	?	
	a. $Ba(ClO)_2$	c.	$Ba(ClO_3)_2$
	b. $Ba(ClO_2)_2$	d.	BaCl ₂
31.	What is the correct formula for calcium dihydro	oger	phosphate?
 	a. CaH ₂ PO ₄	c.	$Ca(H_2PO_4)_2$
	b. $\operatorname{Ca}_{2}\operatorname{H}_{2}\operatorname{PO}_{4}$	d.	$Ca(H_2 HPO_4)_2$
32.	What does an <i>-ite</i> or <i>-ate</i> ending in a polyatomi	c io	n mean?
 02.	a. Oxygen is in the formula.	с.	Nitrogen is in the formula.
	b. Sulfur is in the formula.	d.	Bromine is in the formula.
 33.	What is the correct name for $Sn_3(PO_4)_2$?		
	a. tritin diphosphate	c.	tin(III) phosphate
	b. tin(II) phosphate	d.	tin(IV) phosphate

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Essay

34. Name the compounds CuBr₂, SCl₂, and BaF₂. Explain the use or omission of the Roman numeral (II) and the prefix *di*-.

Chapter 9 Practice Test - Naming and Writing Chemical Formulas Answer Section

MATCHING

1.	ANS:	А	PTS:	1	DIF:	L1	REF:	p. 253
	OBJ:	9.1.1 Identify	the cha	arges of monato	mic io	ns by using the	periodi	ic table, and name the ions.
	STA:	Ch.5.a		0			•	
2.	ANS:	Н	PTS:	1	DIF:	L1	REF:	p. 254
	OBJ:	9.1.1 Identify	the cha	arges of monato	mic io	ns by using the	periodi	ic table, and name the ions.
	STA:	Ch.5.a		-			-	
3.	ANS:	F	PTS:	1	DIF:	L1	REF:	p. 253
	OBJ:	9.1.1 Identify	the cha	arges of monato	mic io	ns by using the	periodi	ic table, and name the ions.
	STA:	Ch.5.a						
4.	ANS:	Ι	PTS:	1	DIF:	L1	REF:	p. 257
	OBJ:	9.1.2 Define a	a polyat	tomic ion and w	rite th	e names and for	rmulas	of the most common polyatomic ions.
		STA:	Ch.5.a	l				
5.	ANS:	G	PTS:	1	DIF:	L1	REF:	p. 261
	OBJ:	9.2.1 Apply the	he rules	for naming and	d writi	ng formulas for	binary	ionic compounds.
	STA:	Ch.5.a						
6.	ANS:	В	PTS:	1	DIF:	L1	REF:	p. 271
	OBJ:	9.4.1 Apply the	hree rul	es for naming a	icids.		STA:	Ch.5.a
7.	ANS:	С	PTS:	1	DIF:	L1	REF:	p. 273
	OBJ:	9.4.3 Apply the	he rules	for naming bas	ses.		STA:	Ch.5.a
8.	ANS:	D	PTS:	1	DIF:	L1	REF:	p. 274
	OBJ:	9.5.1 Define t	the laws	s of definition p	roporti	ions and multip	le prop	ortions.
	STA:	Ch.5.a		_	_	_		
9.	ANS:	E	PTS:	1	DIF:	L1	REF:	p. 274
	OBJ:	9.5.1 Define t	the laws	s of definition p	roporti	ions and multip	le prop	ortions.
	STA:	Ch.5.a		_		_	_	

MULTIPLE CHOICE

10.	ANS:	С	PTS:	1	DIF:	L1	REF:	p. 254 p. 255
	OBJ:	9.1.1 Identify	the cha	rges of monato	mic io	ns by using the	periodi	c table, and name the ions.
11.	ANS:	С	PTS:	1	DIF:	L2	REF:	p. 254 p. 255
	OBJ:	9.1.1 Identify	the cha	arges of monato	mic io	ns by using the	periodi	ic table, and name the ions.
12.	ANS:	В	PTS:	1	DIF:	L2	REF:	p. 254
	OBJ:	9.1.1 Identify	the cha	rges of monato	mic io	ns by using the	periodi	ic table, and name the ions.
	STA:	Ch.1.c Ch.1.c	1					
13.	ANS:	В	PTS:	1	DIF:	L1	REF:	p. 254 p. 255 p. 257
	OBJ:	9.1.1 Identify	the cha	arges of monato	mic io	ns by using the	periodi	c table, and name the ions. 9.1.2
	Define	e a polyatomic i	on and	write the name	s and f	ormulas of the	most co	ommon polyatomic ions.
	STA:	Ch.2						
14.	ANS:	D	PTS:	1	DIF:	L2	REF:	p. 257
	OBJ:	9.1.2 Define a	ı polyat	omic ion and w	rite the	e names and for	mulas	of the most common polyatomic ions.
		STA:	Ch.2					
15.	ANS:	А	PTS:	1	DIF:	L2	REF:	p. 261
	OBJ:	9.2.1 Apply the	he rules	for naming an	d writii	ng formulas for	binary	ionic compounds.
	STA:	Ch.2.a						

16.ANS:APTS:1DIF:L2REF:p. 253 | p. 254 | p. 262OBJ:9.2.1Apply the rules for naming and writing formulas for binary ionic compounds.STA:Ch.2

17.	ANS:	A	A 1 (1	PTS:	1	DIF:	L2	REF:	p. 262 p. 263	
	OBJ: STA·	9.2.1 Ch 2	Apply t	he rules	for naming an	id writii	ng formulas for	binary	ionic compounds.	
18	ANS.	CII.2		PTS∙	1	DIF	1.2	REF	n 257 n 261 n 262	
10.	OBJ:	9.2.2	Apply the	he rules	for naming an	nd writi	ng formulas for	compo	bunds with polyatomic ions.	
	STA:	Ch.2	11 2		U		8	I	1 2	
19.	ANS:	С		PTS:	1	DIF:	L2	REF:	p. 264 p. 277	
	OBJ:	9.2.2	Apply t	he rules	for naming an	nd writi	ng formulas for	compo	unds with polyatomic ions.	
•	STA:	Ch.2.	а	DEC		515		D D D D	2.50	
20.	ANS:	C	Intonno	PTS:	l ofives in the n	DIF:	L2	REF:	p. 268	
	STA	9.5.1 Ch 2	a mierpre	t the pr	enxes in the na	ames of	molecular com	pounds	in terms of their chemical formulas.	
21	ANS.	C11.2.	a	PTS ·	1	DIF	L.1	REF	n 268	
21.	OBJ:	9.3.1	Interpre	t the pr	efixes in the na	ames of	molecular com	pounds	in terms of their chemical formulas.	
	9.3.2	Apply	the rules	for nai	ming and writi	ng form	ulas for binary	molecu	llar compounds.	
	STA:	Ch.2.	a		-	-			-	
22.	ANS:	С		PTS:	1	DIF:	L1	REF:	p. 269	
	OBJ:	9.3.2	Apply t	he rules	for naming an	id writi	ng formulas for	binary	molecular compounds.	
•••	STA:	Ch.2		DTG		БШ		DEE		
23.	ANS:	D	A nulley t	PTS:	l for noming on	DIF:	L3	KEF:	p. 268 p. 269	
	OBJ: STA	9.3.2 Ch 2	Apply u	ne rules	for naming an	ia writii	ng formulas for	binary	molecular compounds.	
24	ANS.	CII.2		PTS ∙	1	DIF	L1	REF	n 271	
21.	OBJ:	9.4.1	Apply t	hree rul	es for naming	acids.	LI	STA:	Ch.5.a	
25.	ANS:	А	rr J	PTS:	1	DIF:	L2	REF:	p. 272	
	OBJ:	9.4.1	Apply the	hree rul	es for naming	acids.		STA:	Ch.5.a	
26.	ANS:	D		PTS:	1	DIF:	L2	REF:	p. 272	
	OBJ:	9.4.1	Apply the	hree rul	es for naming	acids.		STA:	Ch.5	
27.	ANS:	A		PTS:	1	DIF:	L2	REF:	p. 272	
20	OBJ:	9.4.1	Apply t	hree rul	es for naming	acids.	1.2	STA:	Ch.5.a	
28.	ANS:	D	A nnlv t	PTS:	l	DIF:	L3	REF:	p. 272	
	STA	9.4.2 Ch 5	Apply u	ne rules	in reverse to v	write to	mulas of actus	•		
29	ANS.	D		PTS∙	1	DIF	L2	REF∙	n 261 n 262 n 277	
_ >.	OBJ:	9.2.1	Apply the	he rules	for naming an	nd writi	ng formulas for	binary	ionic compounds. 9.5.2 Apply the rules	
	for nat	ming c	hemical	compou	unds by using a	a flowcl	nart.	STA:	Ch.5	
30.	ANS:	С		PTS:	1	DIF:	L3	REF:	p. 257 p. 264	
	OBJ:	9.2.2	Apply the	he rules	for naming an	nd writin	ng formulas for	compo	unds with polyatomic ions. 9.5.2 Apply	
	the rul	les for	naming o	chemica	al compounds b	oy using	g a flowchart.			
21	STA:	Ch.5		DTC.	1	DIE	1.2	DEE.		
31.	ANS:	C	Apply t	PIS: ho rulos	1 for noming or	DIF:	L3	KEF:	p. 257 p. 264 under with polyetomic ions $ 0.52$ Apply	
	the rul	b). 7.2.2 Apply the fulles for naming and writing formulas for compounds with polyatomic fons. 9.5.2 Apply e rules for naming chemical compounds by using a flowchart								
	STA:	Ch.5	inanining (liennet		og using	s a mo wemant.			
32.	ANS:	А		PTS:	1	DIF:	L1	REF:	p. 257 p. 278	
	OBJ:	9.1.3	Identify	the two	o common end	ings for	the names of n	nost po	lyatomic ions. 9.5.3 Apply the rules for	
	writin	g chem	nical form	nulas by	y using a flowe	chart.	STA:	Ch.2		
33.	ANS:	В		PTS:	1	DIF:	L3	REF:	p. 264 p. 277	
	OBJ:	9.5.3	Apply t	he rules	for writing ch	emical	formulas by usi	ing a flo	owchart.	
	STA:	Ch.2.	b Ch.5							

ESSAY

 $CuBr_2$ is copper(II) bromide. The name must include a Roman numeral because copper is a transition element that can form ions with more than one charge. SCl₂ is sulfur dichloride. The compound is named with prefixes because sulfur and chlorine are both nonmetals and thus form a molecular compound. BaF₂ is barium fluoride. A Roman numeral is not needed in this name because barium is a Group A metal and forms only the 2+ ion. Prefixes are not used in ionic compounds.

PTS: 1 DIF: L3 REF: p. 277 OBJ: 9.5.3 Apply the rules for writing chemical formulas by using a flowchart. STA: Ch.2