

Honors Chemistry NAMING PRACTICE**Multiple Choice**

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

- _____ 1. What type of ions have names ending in *-ide*?
a. only cations
b. only anions
c. only metal ions
d. only gaseous ions
- _____ 2. When Group 2A elements form ions, they _____.
a. lose two protons
b. gain two protons
c. lose two electrons
d. gain two electrons
- _____ 3. What is the correct name for the N^{3-} ion?
a. nitrate ion
b. nitrogen ion
c. nitride ion
d. nitrite ion
- _____ 4. 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
b. suffix
c. Roman numeral following the name
d. superscript after the name
- _____ 5. Aluminum is a group 3A metal. Which ion does Al typically form?
a. Al^{3-}
b. Al^{3+}
c. Al^{5-}
d. Al^{5+}
- _____ 6. 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*
- _____ 7. What determines that an element is a metal?
a. the magnitude of its charge
b. the molecules that it forms
c. when it is a Group A element
d. its position in the periodic table
- _____ 8. Which of the following is NOT a cation?
a. iron(III) ion
b. sulfate
c. Ca^{2+}
d. mercurous ion
- _____ 9. In which of the following are the symbol and name for the ion given correctly?
a. NH_4^+ : ammonia; H^+ : hydride
b. $\text{C}_2\text{H}_3\text{O}_2^-$: acetate; $\text{C}_2\text{O}_4^{2-}$: oxalite
c. OH^- : hydroxide; O^{2-} : oxide
d. PO_3^{3-} : phosphate; PO_4^{3-} : phosphite

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- _____ 10. Which of the following correctly provides the names and formulas of polyatomic ions?
- carbonate: HCO_3^- ; bicarbonate: CO_3^{2-}
 - nitrite: NO^- ; nitrate: NO_2^-
 - sulfite: S^{2-} ; sulfate: SO_3^-
 - chromate: CrO_4^{2-} ; dichromate: $\text{Cr}_2\text{O}_7^{2-}$
- _____ 11. An *-ate* or *-ite* at the end of a compound name usually indicates that the compound contains ____.
- fewer electrons than protons
 - neutral molecules
 - only two elements
 - a polyatomic anion
- _____ 12. Which of the following compounds contains the Mn^{3+} ion?
- MnS
 - MnBr_2
 - Mn_2O_3
 - MnO
- _____ 13. How are chemical formulas of binary ionic compounds generally written?
- cation on left, anion on right
 - anion on left, cation on right
 - Roman numeral first, then anion, then cation
 - subscripts first, then ions
- _____ 14. Which of the following is true about the composition of ionic compounds?
- They are composed of anions and cations.
 - They are composed of anions only.
 - They are composed of cations only.
 - They are formed from two or more nonmetallic elements.
- _____ 15. Which of the following formulas represents an ionic compound?
- CS_2
 - BaI_2
 - N_2O_4
 - PCl_3
- _____ 16. Which element, when combined with fluorine, would most likely form an ionic compound?
- lithium
 - carbon
 - phosphorus
 - chlorine
- _____ 17. Which of the following shows correctly an ion pair and the ionic compound the two ions form?
- Sn^{4+} , N^{3-} ; Sn_4N_3
 - Cu^{2+} , O^{2-} ; Cu_2O_2
 - Cr^{3+} , I^- ; CrI
 - Fe^{3+} , O^{2-} ; Fe_2O_3
- _____ 18. In which of the following are the formula of the ionic compound and the charge on the metal ion shown correctly?
- UCl_3 , U^+
 - ThO_2 , Th^{4+}
 - IrS_2 , Ir^{2+}
 - NiO , Ni^+

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- ____ 19. Which of the following correctly represents an ion pair and the ionic compound the ions form?
- a. Ca^{2-} , F^- ; CaF_2
 - b. Na^+ , Cl^- ; NaCl_2
 - c. Ba^{2+} , O^{2-} ; Ba_2O_2
 - d. Pb^{4+} , O^{2-} ; Pb_2O_4
- ____ 20. Which of the following compounds contains the lead(II) ion?
- a. PbO
 - b. PbCl_4
 - c. Pb_2O
 - d. Pb_2S
- ____ 21. Which set of chemical name and chemical formula for the same compound is correct?
- a. iron(II) oxide, Fe_2O_3
 - b. aluminum fluorate, AlF_3
 - c. tin(IV) bromide, SnBr_4
 - d. potassium chloride, K_2Cl_2
- ____ 22. What is the correct formula for potassium sulfite?
- a. KHSO_3
 - b. KHSO_4
 - c. K_2SO_3
 - d. K_2SO_4
- ____ 23. Which set of chemical name and chemical formula for the same compound is correct?
- a. ammonium sulfite, $(\text{NH}_4)_2\text{S}$
 - b. iron(III) phosphate, FePO_4
 - c. lithium carbonate, LiCO_3
 - d. magnesium dichromate, MgCrO_4
- ____ 24. What type of compound is CuSO_4 ?
- a. monatomic ionic
 - b. polyatomic covalent
 - c. polyatomic ionic
 - d. binary molecular
- ____ 25. Which polyatomic ion forms a neutral compound when combined with a group 1A monatomic ion in a 1:1 ratio?
- a. ammonium
 - b. carbonate
 - c. nitrate
 - d. phosphate
- ____ 26. Sulfur hexafluoride is an example of a ____.
- a. monatomic ion
 - b. polyatomic ion
 - c. binary compound
 - d. polyatomic compound
- ____ 27. Molecular compounds are usually ____.
- a. composed of two or more transition elements
 - b. composed of positive and negative ions
 - c. composed of two or more nonmetallic elements
 - d. exceptions to the law of definite proportions
- ____ 28. What is the ending for the names of all binary compounds, both ionic and molecular?
- a. *-ide*
 - b. *-ite*
 - c. *-ade*
 - d. *-ate*
- ____ 29. Binary molecular compounds are made of two ____.
- a. metallic elements
 - b. nonmetallic elements
 - c. polyatomic ions
 - d. cations

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- ____ 30. In naming a binary molecular compound, the number of atoms of each element present in the molecule is indicated by ____.
- Roman numerals
 - superscripts
 - prefixes
 - suffixes
- ____ 31. Which of the following correctly shows a prefix used in naming binary molecular compounds with its corresponding number?
- deca-*, 7
 - nona-*, 9
 - hexa-*, 8
 - octa-*, 4
- ____ 32. Which of the following is a binary molecular compound?
- BeHCO_3
 - PCl_5
 - AgI
 - MgS
- ____ 33. Which of the following formulas represents a molecular compound?
- ZnO
 - Xe
 - SO_2
 - BeF_2
- ____ 34. Consider a mystery compound having the formula M_xT_y . If the compound is not an acid, if it contains only two elements, and if M is not a metal, which of the following is true about the compound?
- It contains a polyatomic ion.
 - Its name ends in *-ite* or *-ate*.
 - Its name ends in *-ic*.
 - It is a binary molecular compound.
- ____ 35. Select the correct formula for sulfur hexafluoride.
- S_2F_6
 - F_6SO_3
 - F_6S_2
 - SF_6
- ____ 36. What is the correct name for the compound CoCl_2 ?
- cobalt(I) chlorate
 - cobalt(I) chloride
 - cobalt(II) chlorate
 - cobalt(II) chloride
- ____ 37. What is the correct formula for barium chlorate?
- $\text{Ba}(\text{ClO})_2$
 - $\text{Ba}(\text{ClO}_2)_2$
 - $\text{Ba}(\text{ClO}_3)_2$
 - BaCl_2
- ____ 38. What is the correct formula for calcium dihydrogen phosphate?
- CaH_2PO_4
 - $\text{Ca}_2\text{H}_2\text{PO}_4$
 - $\text{Ca}(\text{H}_2\text{PO}_4)_2$
 - $\text{Ca}(\text{H}_2\text{HPO}_4)_2$
- ____ 39. Which of the following is the correct name for N_2O_5 ?
- nitrous oxide
 - dinitrogen pentoxide
 - nitrogen dioxide
 - nitrate oxide

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- _____ 40. What is the correct name for $\text{Sn}_3(\text{PO}_4)_2$?
- | | |
|-----------------------|-----------------------|
| a. tritin diphosphate | c. tin(III) phosphate |
| b. tin(II) phosphate | d. tin(IV) phosphate |

Numeric Response

41. Write the charge of an chloride ion.
42. What is the charge on the polyatomic ions nitrite and chlorite?
43. What is the charge on the cation in CuSO_4 ?
44. What is the ionic charge on the zirconium ion in the ionic compound zirconium oxide, ZrO_2 ?
45. How many iron(II) ions combine with oxygen to form iron(II) oxide?
46. Determine the subscript for ammonium in the chemical formula for ammonium dichromate.