

Ch. 4 Take Home Test

Multiple Choice

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

- ___ 1. Of the acids contains oxygen, which is true regarding those ending in **-ous** compared to those ending in **-ic**?
- contains more hydrogen.
 - contains more oxygen.
 - contains less oxygen.
 - contains the same amount of oxygen.
- ___ 2. A chemical formula includes the symbols of the elements in the compound and subscripts that indicate
- the number of electrons in each element.
 - how many atoms or ions of each type are combined in the simplest unit.
 - the formula mass.
 - the charges on the elements or ions.
- ___ 3. Changing a subscript in a correctly written chemical formula
- changes the number of protons represented by the formula.
 - changes the charges on the other ions in the compound.
 - changes the formula so that it no longer represents that compound.
 - has no effect on the formula.
- ___ 4. What is the formula for the compound formed by lead(II) ions and chromate ions?
- PbCrO_4
 - Pb_2CrO_4
 - $\text{Pb}_2(\text{CrO}_4)_3$
 - $\text{Pb}(\text{CrO}_4)_2$
- ___ 5. What is the formula for tin(IV) chromate?
- $\text{Sn}(\text{CrO}_4)_4$
 - $\text{Sn}_2(\text{CrO}_4)_2$
 - $\text{Sn}_2(\text{CrO}_4)_4$
 - $\text{Sn}(\text{CrO}_4)_2$
- ___ 6. Name the compound CuCO_3 .
- copper(I) carbonate
 - copper(III) carbonate
 - copper(IV) carbonate
 - copper(II) carbonate
- ___ 7. What type of ions have names ending in *-ide*?
- only cations
 - only anions
 - only metal ions
 - only gaseous ions
- ___ 8. What is the correct name for the N^{3-} ion?
- nitrate ion
 - nitrogen ion
 - nitride ion
 - nitrite ion
- ___ 9. 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 ____.
- prefix
 - suffix
 - Roman numeral following the name
 - superscript after the name
- ___ 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 1 element
 - a polyatomic anion
- ___ 12. Which of the following compounds contains the Mn^{3+} ion?
- MnS
 - MnBr_2
 - Mn_2O_3
 - MnO
- ___ 13. 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.
- ___ 14. Which of the following formulas represents an ionic compound?
- CS_2
 - BaI_2
 - N_2O_4
 - PCl_3
- ___ 15. Which element, when combined with fluorine, would most likely form an ionic compound?
- lithium
 - carbon
 - phosphorus
 - chlorine
- ___ 16. Which of the following correctly represents an ion pair and the ionic compound the ions form?
- Ca^{2+} , F^- ; CaF_2
 - Na^+ , Cl^- ; NaCl_2
 - Ba^{2+} , O^{2-} ; Ba_2O_2
 - Pb^{4+} , O^{2-} ; Pb_2O_4
- ___ 17. In which of the following is the name and formula given correctly?
- sodium oxide, NaO
 - barium nitride, BaN
 - cobalt (I) chloride, CoCl_3
 - Tin (IV) fluoride, SnF_4
- ___ 18. Which of the following compounds contains the lead(II) ion?
- PbO
 - PbCl_4
 - Pb_2O
 - Pb_2S
- ___ 19. What is the correct formula for potassium sulfite?
- KHSO_3
 - KHSO_4
 - K_2SO_3
 - K_2SO_4
- ___ 20. Which set of chemical name and chemical formula for the same compound is correct?
- ammonium sulfite, $(\text{NH}_4)_2\text{S}$
 - iron(III) phosphate, FePO_4
 - lithium carbonate, LiCO_3
 - magnesium dichromate, MgCrO_4
- ___ 21. What is the ending for the names of all **binary** compounds, both ionic and Type III?
- ide*
 - ite*
 - ade*
 - ate*
- ___ 22. Which of the following correctly shows a prefix used in naming binary molecular compounds with its corresponding number?
- deca-*, 10
 - nona-*, 5
 - hexa-*, 8
 - octa-*, 4

- ___ 23. Which of the following formulas represents a Type 3 compound?
- | | |
|--------|---------------------|
| a. ZnO | c. SO ₂ |
| b. Xe | d. BeF ₂ |
- ___ 24. Which of the following shows both the correct formula and correct name of an acid?
- | | |
|---|---|
| a. HClO ₂ , chloric acid | c. H ₃ PO ₄ , phosphoric acid |
| b. HNO ₂ , hydronitrous acid | d. HI, iodic acid |
- ___ 25. What is the name of H₂SO₃?
- | | |
|-----------------------|-------------------|
| a. hyposulfuric acid | c. sulfuric acid |
| b. hydrosulfuric acid | d. sulfurous acid |
- ___ 26. What is the formula for hydrosulfuric acid?
- | | |
|-----------------------------------|---------------------|
| a. H ₂ S ₂ | c. HSO ₂ |
| b. H ₂ SO ₂ | d. H ₂ S |
- ___ 27. Select the correct formula for sulfur hexafluoride.
- | | |
|-----------------------------------|--------------------|
| a. S ₂ F ₆ | c. FS ₆ |
| b. F ₆ SO ₃ | d. SF ₆ |
- ___ 28. What is the correct name for the compound CoCl₂?
- | | |
|------------------------|------------------------|
| a. cobalt(I) chlorate | c. cobalt(II) chlorate |
| b. cobalt(II) chloride | d. cobalt(I) chloride |
- ___ 29. What is the correct formula for barium chlorate?
- | | |
|---------------------------------------|-------------------------|
| a. Ba(ClO ₃) ₂ | c. Ba(ClO) ₂ |
| b. Ba(ClO ₂) ₂ | d. BaCl ₂ |
- ___ 30. What is the correct formula for calcium dihydrogen phosphate?
- | | |
|---|--|
| a. CaH ₂ PO ₄ | c. Ca(H ₂ PO ₄) ₂ |
| b. Ca ₂ H ₂ PO ₄ | d. Ca(H ₂ HPO ₄) ₂ |
- ___ 31. Which of the following is the correct name for N₂O₅?
- | | |
|-------------------------|---------------------|
| a. nitrous oxide | c. nitrogen dioxide |
| b. dinitrogen pentoxide | d. nitrate oxide |
- ___ 32. What is the correct name for Sn₃(PO₄)₂?
- | | |
|-----------------------|-----------------------|
| a. tritin diphosphate | c. tin(III) phosphate |
| b. tin(II) phosphate | d. tin(IV) phosphate |

The word Nomenclature comes from Nomenclator, who is a person who calls out names. "Nomen" means names and "clator" is a person who calls out. When students get their diploma, the nomenclator is the person who calls out the students' names. In chemistry, "nomenclature" is learning to call out chemical names. Understanding chemistry nomenclature is like learning any language. It takes practice and study, but the reward is that it gives you the ability to talk to people you couldn't talk to before.

- ___ 33. What does the term nomenclature mean?
- | | |
|--|--------------------------|
| a. learning to call out chemical names | c. to mold from clay |
| b. writing formulas | d. to practice and study |

Model 4 – Traditional Names for Ionic Compounds

Metals that form one ion	Metals that form multiple ions
NaCl Sodium chloride	Cu ₂ O Cuprous oxide
CaS Calcium sulfide	CuO Cupric oxide
Ag ₂ S Silver sulfide	SnF ₂ Stannous fluoride
Zn ₃ P ₂ Zinc phosphide	SnF ₄ Stannic fluoride

- ____ 34. What is the stock system name for the ionic compound stannous fluoride?
- a. can't be names using the stock system c. tin (II) fluoride
 b. tin (IV) fluoride d. stannic fluoride

Use the following information for the next two questions.

Cuprous oxide is commonly used as a pigment, a fungicide, and an antifouling agent for marine paints. Rectifier diodes based on this material have been used industrially as early as 1924, long before silicon became the standard.

- ____ 35. What is the charge of the copper in cuprous oxide?
- a. 1+ c. 1-
 b. 2+ d. 2-
- ____ 36. What is the correct stock system name for cuprous oxide.
- a. Can't be determined c. copper (II) oxide
 b. copper (I) oxide d. copper oxide