Chemistry 12th edition Chang Test Bank

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Chapter 02
Atoms, Molecules, and Ions

Multiple Choice Questions

1.

In a cathode ray tube

A. electrons pass from the anode to the cathode.
B. electrons pass from the cathode to the anode.
C. protons pass from the anode to the cathode.
D. protons pass from the cathode to the anode.

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

2. The scientist who determined the magnitude of the electric charge of the electron was
A. John Dalton.
B. Robert Millikan.
C. J. J. Thomson.
D. Henry Moseley.
E. R. Chang.

Bloom's Level: 1. Remember
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

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3. When J. J. Thomson discovered the electron, what physical property of the electron did he measure?
A. its charge, *e*
B. its charge-to-mass ratio, *e/m*
C. its temperature, *T*
D. its mass, *m*
E. its atomic number, *Z*

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

4. Which of the following scientists developed the nuclear model of the atom?
A. John Dalton
B. Robert Millikan
C. J. J. Thomson
D. Henry Moseley
E. Ernest Rutherford

Bloom's Level: 1. Remember
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

5. Rutherford's experiment with alpha particle scattering by gold foil established that
A. protons are not evenly distributed throughout an atom.
B. electrons have a negative charge.
C. electrons have a positive charge.
D. atoms are made of protons, neutrons, and electrons.
E. protons are 1840 times heavier than electrons.

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

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6. Atoms of the same element with different mass numbers are called
A. ions.
B. neutrons.
C. allotropes.
D. chemical families.
E. isotopes.

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

7. An atom of the isotope ^{137}Ba consists of how many protons (p), neutrons (n), and electrons (e)?
A. 56 p, 137 n, 56 e
B. 56 p, 81 n, 56 e
C. 137 p, 81 n, 56 e
D. 56 p, 56 n, 56 e
E. 81 p, 56 n, 81 e

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

8. Give the number of protons (p), neutrons (n), and electrons E) in one atom of ^{238}U.
A. 146 p, 92 n, 92 e
B. 92 p, 92 n, 92 e
C. 92 p, 146 n, 92e
D. 146 p, 28 n, 146 e
E. 238 p, 146 n, 238 e

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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9. Which of the following are isotopes?
A. ^{14}C and ^{13}C
B. ^{14}C and ^{14}N
C. ^{14}N and $^{14}N^{3-}$
D. ^{12}C and ^{12}CO
E. ^{14}N and $^{14}N_2$

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

10.

Complete the following chart, in order from left to right

Isotope	Mass Number	Protons	Neutrons	Electrons
^{14}N				

A. 14, 7, 7, 7
B. 14, 7, 14, 7
C. 7, 7, 7, 7
D. 7, 14, 7, 7
E. Some other answer

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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11.

Complete the following chart, in order from left to right

Isotope	Mass Number	Protons	Neutrons	Electrons
	40	19		19

A. ^{40}Zr, 21
B. ^{19}K, 40
C. ^{21}K, 19
D. ^{40}K, 21
E. ^{38}Sr, 19

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

12.

Complete the following chart, in order from left to right

Isotope	Mass Number	Protons	Neutrons	Electrons
		40	57	40

A. ^{97}Zr, 97
B. ^{40}Zr, 57
C. ^{57}La, 40
D. ^{97}Bk, 80
E. ^{80}Hg, 97

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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13.

Complete the following chart, in order from left to right

Ion	Mass Number	Protons	Neutrons	Electrons
$^{40}Ca^{2+}$				

A. 40, 20, 20, 20
B. 40, 20, 20, 18
C. 20, 20, 40, 20
D. 40, 20, 20, 22
E. 20, 40, 20, 22

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

14.

Complete the following chart, in order from left to right

Ion	Mass Number	Protons	Neutrons	Electrons
	4	2		0

A. ^{4}He, 2
B. ^{4}Be, 4
C. ^{4}Be, 2
D. ^{4}He, 4
E. ^{2}H, 2

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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15. The elements in a column of the periodic table are known as
A. metalloids.
B. a period.
C. noble gases.
D. a group.
E. nonmetals.

Bloom's Level: 1. Remember
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Elements and the Periodic Table
Topic: Components of Matter

16. Which of the following elements is most likely to be a good conductor of electricity?
A. N
B. S
C. He
D. Cl
E. Fe

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

17. Which of the following elements is chemically similar to magnesium?
A. sulfur
B. calcium
C. iron
D. nickel
E. potassium

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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18. Which of the following elements is chemically similar to oxygen?
A. sulfur
B. calcium
C. iron
D. nickel
E. sodium

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

19. Which of the following elements is chemically similar to potassium?
A. calcium
B. arsenic
C. phosphorus
D. cerium
E. cesium

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

20. An *anion* is defined as
A. a charged atom or group of atoms with a net negative charge.
B. a stable atom.
C. a group of stable atoms.
D. an atom or group of atoms with a net positive charge.

Bloom's Level: 1. Remember
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

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21. Which one of the following is an ion?
A. B^{3+}
B. NaCl
C. He
D. ^{14}C
E. none of the above

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

22. Which one of the following elements is most likely to form a 2+ ion?
A. calcium
B. carbon
C. fluorine
D. oxygen
E. sodium

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

23. Which one of the following elements is most likely to form a 2– ion?
A. scandium
B. selenium
C. silicon
D. strontium
E. iodine

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

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24. A magnesium ion, Mg^{2+}, has
A. 12 protons and 13 electrons.
B. 24 protons and 26 electrons.
C. 12 protons and 10 electrons.
D. 24 protons and 22 electrons.
E. 12 protons and 14 electrons.

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

25. An aluminum ion, Al^{3+}, has:
A. 13 protons and 13 electrons
B. 27 protons and 24 electrons
C. 16 protons and 13 electrons
D. 13 protons and 10 electrons
E. 10 protons and 13 electrons

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

26. An oxide ion, O^{2-}, has:
A. 8 protons and 10 electrons
B. 10 protons and 8 electrons
C. 8 protons and 9 electrons
D. 8 protons and 7 electrons
E. 10 protons and 7 electrons

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

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27. A phosphide ion has:
A. 10 protons and 13 electrons
B. 12 protons and 15 electrons
C. 15 protons and 15 electrons
D. 15 protons and 18 electrons
E. 18 protons and 21 electrons

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

28. An iron(II) ion has:
A. 24 electrons and a charge of 2+
B. 24 electrons and a charge of 2–
C. 26 electrons and a charge of 2+
D. 28 electrons and a charge of 2+
E. 28 electrons and a charge of 2–

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

29. How many protons and electrons are present in one Br^- ion?
A. 35 p, 35 e
B. 80 p, 81 e
C. 35 p, 34 e
D. 35 p, 36 e
E. 80 p, 34 e

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

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30.

What are the two different ions present in the compound CaS?

A. Ca^{+}, S^{-}
B. Ca^{2-}, S^{2+}
C. Ca^{-}, S^{+}
D. Ca^{2+}, S^{2-}
E. Ca, S

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Molecules and Ions
Topic: Components of Matter

31. What are the two different ions present in the compound Na_2S?
A. Na_2^{+}, S^{2-}
B. Na^{+}, S^{2-}
C. Na^{2+}, S^{2-}
D. Na^{+}, S^{-}
E. Na^{2+}, S^{-}

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Molecules and Ions
Topic: Components of Matter

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32. What are the two different ions present in the compound Li_3N?
A. Li^+, N^{3-}
B. Li_3^+, N^-
C. Li_3^{3+}, N^{3-}
D. Li^+, N^-
E. Li^{3+}, N^{3-}

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Molecules and Ions
Topic: Components of Matter

33. What are the two different ions present in the compound $FeCl_3$?
A. Fe^{2+}, Cl_3^-
B. Fe^{3+}, Cl^{3-}
C. Fe^+, Cl^-
D. Fe^{3+}, Cl^-
E. Fe^+, Cl^-

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Molecules and Ions
Topic: Components of Matter

34. What are the ions present in the compound CO_2?
A. C^{4+}, 2 O^{2-}
B. C^{2+}, 2 O^-
C. C^{2+}, O^{2-}
D. C^{2+}, O_2^{2-}
E. no ions present

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Molecules and Ions
Topic: Components of Matter

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35. What are the ions present in the compound CH_4?
A. C^{4+}, H^+
B. C^{4-}, H^+
C. C^-, H^+
D. C^{4-} H^{4+}
E. no ions present

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Molecules and Ions
Topic: Components of Matter

36. Which of the following is an example of an empirical formula?
A. C_9H_{12}
B. $C_9H_{18}Cl_2$
C. C_6H_6
D. N_2O_4
E. $C_2H_2O_2$

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Chemical Formulas
Topic: Components of Matter

37. What is the empirical formula for $C_{10}H_{22}O_2$?
A. $C_{10}H_{22}O_2$
B. $C_5H_{11}O$
C. $C_{20}H_{44}O_4$
D. $C_2H_{11}O$
E. $C_5H_{11}O_2$

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Chemical Formulas
Topic: Components of Matter

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38. What is the empirical formula for $C_6H_{14}O$?
A. $C_6H_{14}O$
B. C_3H_7O
C. C_2H_7O
D. $C_{12}H_{28}O_2$
E. CHO

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.06
Subtopic: Chemical Formulas
Topic: Components of Matter

39. What is the ion ClO_4^- named?
A. chloride ion
B. chlorite ion
C. hypochlorite ion
D. perchlorite ion
E. perchlorate ion

Bloom's Level: 1. Remember
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

40. What is the formula for the ionic compound containing calcium ions and nitrate ions?
A. Ca_3N_2
B. $Ca(NO_3)_2$
C. Ca_2NO_3
D. Ca_2NO_2
E. $CaNO_3$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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41. What is the formula for the ionic compound containing calcium ions and oxide ions?
A. CaO
B. Ca_2O
C. CaO_2
D. Ca_3O
E. CaO_3

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

42. What is the formula for the ionic compound containing iron (III) ions and iodide ions?
A. FeI
B. Fe_2I
C. FeI_2
D. FeI_3
E. Fe_3I

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

43. What is the formula for the ionic compound containing sodium ions and nitride ions?
A. NaN
B. Na_2N
C. NNa_2
D. Na_3N
E. NNa_3

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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44. What is the formula for the ionic compound containing barium ions and sulfate ions?
A. $BaSO_4$
B. Ba_2SO_4
C. BaS
D. $Ba(SO_4)_2$
E. Ba_3S_2

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

45. What are the two different ions present in the compound $Al(NO_3)_3$?
A. Al^{3+}, $(NO_3)_3^-$
B. Al^+, NO_3^-
C. Al^{3+}, NO_3^-
D. Al^{3+}, NO_3^{3-}
E. Al^+, $(NO_3)_3^-$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

46. What are the two different ions present in the compound NH_4NO_3?
A. NH_4^-, NO_3^+
B. NH_4^+, NO_3^-
C. N^{3-}, H^+, O^{2-}
D. NH_4^{3+}, NO^{4-}
E. NH_4^+, NO^{3-}

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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47. Which is the correct formula for iron(II) phosphate?
A. Fe_2PO_4
B. $Fe_3(PO_4)_2$
C. Fe_2PO_3
D. $Fe(PO_4)_2$
E. $Fe(PO_3)_2$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

48. Which of the following is the formula for hydroiodic acid?
A. HIO_4
B. HIO_3
C. HIO_2
D. HIO
E. HI

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

49. The formula for calcium phosphate is
A. $CaPO_4$.
B. $Ca_3(PO_4)_2$.
C. $Ca_2(PO_4)_3$.
D. Ca_3P_2.
E. $Ca_3(PO_3)_2$.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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50. The formula for magnesium sulfate is
A. MnS
B. MgS
C. $MnSO_3$
D. $MgSO_4$
E. $MgSO_3$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

51. The formula for sodium sulfide is
A. NaS.
B. K_2S.
C. NaS_2.
D. Na_2S.
E. SeS.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

52. The name for NH_4NO_3 is
A. ammonium nitrate.
B. ammonium nitrogen trioxide.
C. ammonia nitrogen oxide.
D. hydrogen nitrogen oxide.
E. hydrogen nitrate.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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53. The name for $Ba(OH)_2$ is
A. barium hydrogen oxide.
B. boron hydroxide.
C. barium hydrate.
D. beryllium hydroxide.
E. barium hydroxide.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

54. The name for $KHCO_3$ is
A. calcium bicarbonate.
B. calcium carbonate.
C. potassium carbonate.
D. calcium hydrogen carbon trioxide.
E. potassium hydrogen carbonate.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

55. The name for $CuSO_4 \cdot 5H_2O$ is
A. copper sulfate acid.
B. copper sulfate pentahydrate.
C. copper(II) sulfate acid.
D. copper(II) sulfate pentahydrate.
E. copper(V) sulfate hydrate.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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56. Give the formula for cobalt(II) chlorate dihydrate.
A. $CoCl_2 \cdot 2H_2O$
B. $CoClO_3(H_2O)_2$
C. $Co(ClO_3)_2(H_2O)_2$
D. $Co(ClO_3)_2 \cdot 2H_2O$
E. $Co_2(ClO_3)_3 \cdot 2H_2O$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

57. Name the compound $Co(NO_3)_2$.
A. Cobalt (I) nitrate
B. Cobalt (II) nitrate
C. Cobalt (I) nitride
D. Cobalt nitrite
E. Cobalt (II) nitride

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

58. Name the compound $CuSO_4$.
A. Copper (I) sulfate
B. Copper (I) sulfite
C. Copper (II) sulfite
D. Copper (II) sulfate
E. Copper (IV) sulfate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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59. Name the compound Al_2O_3.
A. Aluminum oxide
B. Aluminum (II) oxide
C. Dialuminum trioxide
D. Aluminum trioxide
E. Aluminum (I) oxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

60. Which is the formula for lead(IV) chloride?
A. Pb_4Cl
B. $PbCl_2$
C. $PbCl_3$
D. $PbCl_4$
E. Pb_2Cl_4

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

61. What type of compound is $Mg(NO_3)_2$?
A. Ionic
B. Molecular
C. Acid
D. Base
E. Hydrate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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62. What type of compound is NH_4NO_3?
A. Ionic
B. Molecular
C. Acid
D. Base
E. Hydrate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

63. What type of compound is IF_5?
A. Ionic
B. Molecular
C. Acid
D. Base
E. Hydrate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

64. What type of compound is $HBrO_2$?
A. Ionic
B. Binary
C. Acid
D. Base
E. Hydrate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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65. What type of compound is NaOH?
A. Binary
B. Molecular
C. Acid
D. Base
E. Hydrate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

66. What type of compound is H_2SO_3?
A. Ionic
B. Binary
C. Acid
D. Base
E. Hydrate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

67. What type of compound is NH_3?
A. Ionic
B. Ternary
C. Acid
D. Base
E. Hydrate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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68. Name the acid H_3PO_4 (dissolved in water).
A. Phosphoric acid
B. Phosphorous acid
C. Hydrogen phosphate acid
D. Hydrophosphate acid
E. Hydrophosphoric acid

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

69. Name the acid H_2SO_3 (dissolved in water).
A. Sulfuric acid
B. Sulfurous acid
C. Hydrosulfuric acid
D. Persulfuric acid
E. Hyposulfurous acid

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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70. The chemical formula for iron(II) nitrate is
A. $Fe_2(NO_3)_3$.
B.

$Ir(NO_2)_2$.

C. Fe_2N_3.
D. $Fe(NO_3)_2$.
E. $Fe(NO_2)_2$.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

71. Name the compound $Co_2(SO_3)_3$.
A. cobalt sulfate
B. cobalt(II) sulfite
C. cobalt(II) sulfate
D. cobalt(III) sulfite
E. cobalt(III) sulfate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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72. Name the compound CrO_3.
A. chromium oxide
B. chromium(II) oxide
C. chromium(III) trioxide
D. chromium(III) oxide
E. chromium(VI) oxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

73. Name the compound Cl_2O_5.
A. chlorine pentoxide
B. dichlorine pentoxygen
C. dichlorine pentoxide
D. chloride oxide
E. dichloride pentoxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

74. Name the compound N_2O_4.
A. nitrous oxide
B. dinitrogen pentoxide
C. nitrogen oxide
D. dinitrogen tetroxide
E. nitrogen tetroxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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75. Name the compound NO_2.
A. mononitrogen dioxygen
B. nitrogen dioxide
C. dinitrogen monoxide
D. nitrogen oxide
E. nitrite

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

76. Name the compound SO_3.
A. sulfur trioxide
B. sulfate
C. sulfite
D. sulfur trioxygen
E. sulfur oxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

77. The straight chain hydrocarbon that contains six carbon atoms is
A. propane.
B. butane.
C. pentane.
D. hexane.
E. heptane.

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Nomenclature
Topic: Components of Matter

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78. What is the law of conservation of mass?
A. Gravity and mass have the same meaning.
B. Matter can be neither created nor destroyed.
C. Mass can never be changed to energy.
D. Mass and volume will always be equal.
E. Mass can be destroyed but only when it is conserved.

Bloom's Level: 1. Remember
Difficulty: Easy
Gradable: automatic
Section: 02.01
Subtopic: Structure of the Atom
Topic: Components of Matter

79. Of the following which is NOT a contribution of Marie Curie?
A. Discovered two new elements
B. Her scientific studies were awarded a Nobel Prize in chemistry.
C. She discovered the Law of Conservation of Mass.
D. She suggested the term "radioactivity."
E. Her scientific studies were awarded a Nobel Prize in physics.

Bloom's Level: 1. Remember
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

80. Which listing provides the three common types of radiation that can be produced by the decay of radioactive substances like uranium?
A. Alpha, beta, pi rays
B. Alpha, beta, gamma rays
C. Delta, beta, gamma rays
D. Delta, beta, pi rays
E. Alpha, sigma, pi rays

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

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81. Which scientist is credited with suggesting the name "radioactivity" to describe the spontaneous emission of particles and/or radiation?
A. Ernst Rutherford
B. J.J. Thomson
C. Johannes Geiger
D. Raymond Chang
E. Marie Curie

Bloom's Level: 1. Remember
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

True / False Questions

82. Select True or False: Using a cathode ray tube, J. J. Thomson determined the magnitude of the electric charge on the electron.
FALSE

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

83. Select True or False: When a beam of alpha particles passes between two electrically charged plates, the beam is deflected toward the positive plate.
FALSE

Bloom's Level: 2. Understand
Difficulty: Medium
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

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84. Select True or False: The proton is about 1840 times heavier than the electron.
TRUE

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.02
Subtopic: Structure of the Atom
Topic: Components of Matter

Multiple Choice Questions

85. How many electrons, protons, and neutrons does an iron-55 atom have?
A. 26 electrons, 26 protons, and 29 neutrons
B. 55 electrons, 26 protons, and 29 neutrons
C. 26 electrons, 55 protons, and 29 neutrons
D. 26 electrons, 26 protons, and 55 neutrons
E. 29 electrons, 26 protons, and 26 neutrons

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

86. How many protons are there in one atom of nickel?
A. 31
B. 59
C. 28
D. 42
E. None of the above are correct

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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87. How many protons are there in one atom of magnesium?
A. 24
B. 11
C. 10
D. 12
E. None of the above are correct

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

88. How many protons are there in one atom of xenon?
A. 54
B. 77
C. 131
D. 78
E. None of the above are correct

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

89. Almost all the mass of an atom is concentrated in the _____.
A. electrons
B. protons
C. nucleus
D. neurons
E. alpha particles

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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90. The atomic number is equal to the number of _____ in the nucleus of each atom of an element.
A. neutrons
B. protons
C. neutrons
D. alpha particles
E. gamma rays

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

True / False Questions

91. Select True or False: The number of neutrons in all atoms of an element is the same.
FALSE

Bloom's Level: 2. Understand
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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Multiple Choice Questions

92. How many protons are there in one atom of uranium?
A. 238
B. 146
C. 92
D. 99
E. None of the above are correct

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

True / False Questions

93. Select True or False: Isotopes are atoms of the same element that have the same atomic number but different mass numbers.
TRUE

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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Multiple Choice Questions

94.

The table below describes four atoms.

	Atom A	Atom B	Atom C	Atom D
Number of protons	79	80	80	79
Number of neutrons	118	120	118	120
Number of electrons	79	80	80	79

Which atoms represent the same element?

A. A and B represent the same element
B. A and C represent the same element
C. A and D represent the same element
D. B and C represent the same element
E. C and D represent the same element

Bloom's Level: 5. Evaluate
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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95.

Consider a neutral atom of the following isotope of sulfur:



How many electrons, protons, and neutrons does the atom contain?

A. 16 electrons, 16 protons, and 18 neutrons
B. 18 electrons, 16 protons, and 18 neutrons
C. 18electrons, 16 protons, and 16 neutrons
D. 18electrons, 18 protons, and 18 neutrons
E. None of the above are correct

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

96.

How many electrons, protons, and neutrons are in a neutral atom of the following isotope of calcium?



A. 24 electrons, 24 protons, and 24 neutrons
B. 20 electrons, 24 protons, and 20 neutrons
C. 24 electrons, 20 protons, and 20 neutrons
D. 20 electrons, 20 protons, and 24 neutrons
E. None of the above are correct

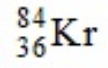
Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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97.

How many electrons, protons, and neutrons are in a neutral atom of the following isotope of krypton?

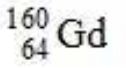


A. 36 electrons, 48 protons, and 36 neutrons
B. 84 electrons, 24 protons, and 36 neutrons
C. 36 electrons, 36 protons, and 48 neutrons
D. 36 electrons, 36 protons, and 84 neutrons
E. None of the above are correct

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

98.

How many electrons, protons, and neutrons are in a neutral atom of the following isotope of gadolinium?



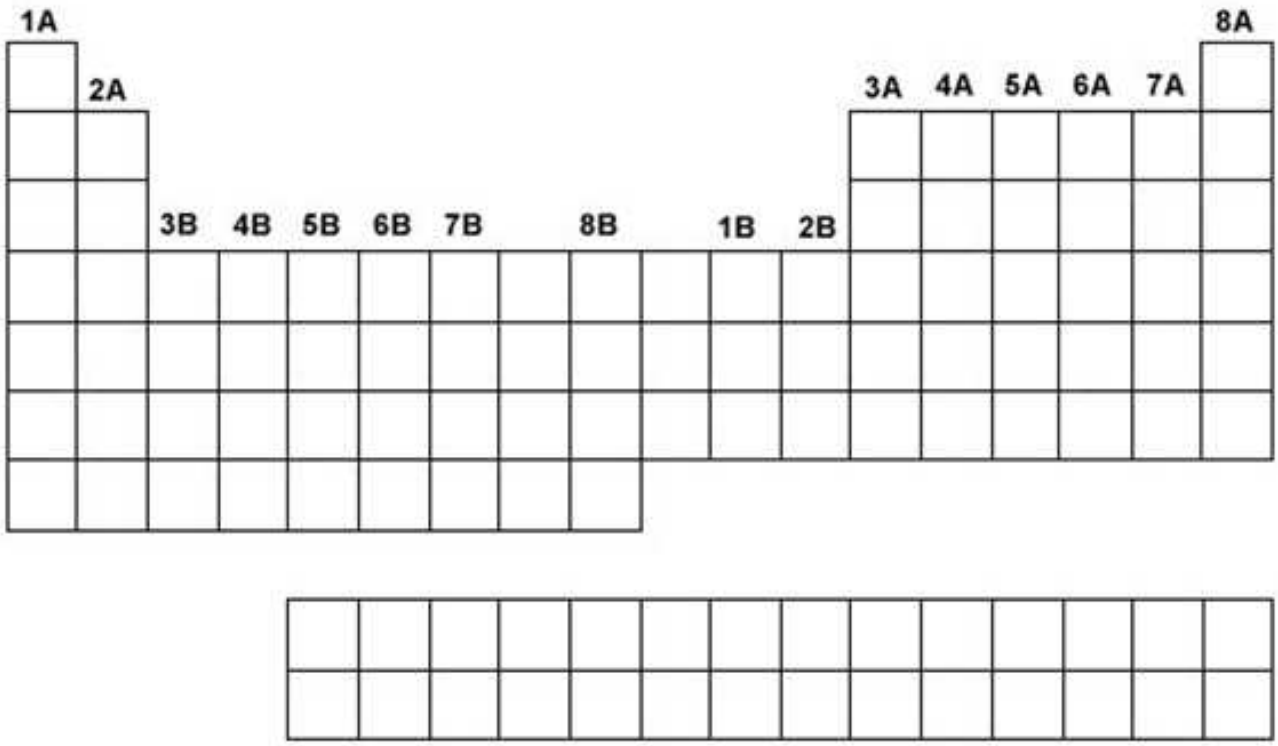
A. 64 electrons, 64 protons, and 160 neutrons
B. 64 electrons, 64 protons, and 96 neutrons
C. 96 electrons, 96 protons, and 64 neutrons
D. 64 electrons, 96 protons, and 96 neutrons
E. None of the above are correct

Bloom's Level: 4. Analyze
Difficulty: Medium
Gradable: automatic
Section: 02.03
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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Use the following to answer questions 99-102:



99. Use the periodic table above to identify where the alkali metals are located.
A. Group 1A
B. Group 2B
C. Group 3A
D. Group 7A
E. Group 8A

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Elements of the Periodic Table
Topic: Components of Matter

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100. Use the periodic table above to locate where the alkaline earth metals are located.
A. Group 1A
B. Group 2B
C. Group 2A
D. Group 7A
E. Group 8A

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Elements of the Periodic Table
Topic: Components of Matter

101. Use the periodic table above to locate where the halogen elements are located.
A. Group 1A
B. Group 2B
C. Group 3A
D. Group 7A
E. Group 8A

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Elements of the Periodic Table
Topic: Components of Matter

102. Use the periodic table above to locate where the noble gases are located.
A. Group 1A
B. Group 2B
C. Group 3A
D. Group 7A
E. Group 8A

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Elements of the Periodic Table
Topic: Components of Matter

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103. The elements known as the halogens are useful as disinfectants. Of the following which is NOT a halogen?
A. Bromine
B. Fluorine
C. Iodine
D. Oxygen
E. Chlorine

Bloom's Level: 4. Analyze
Difficulty: Easy
Gradable: automatic
Section: 02.04
Subtopic: Elements of the Periodic Table
Topic: Components of Matter

104. Which, if any, defines the term *molecule*?
A. A molecule represents the simplest ratio of atoms in a compound.
B. A molecule is a unit that cannot be broken down by normal forces.
C. A molecule is an aggregate of at least two atoms in a definite arrangement held together by chemical forces.
D. A molecule must be composed of three atoms
E. None of the above

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

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105. There are the seven elements that naturally occur as diatomic molecules. This list contains four of those plus one that does not fit this distinction. Which one of the following does not occur naturally as a diatomic molecule?
A. Hydrogen
B. Fluorine
C. Nitrogen
D. Neon
E. Chlorine

Bloom's Level: 2. Understand
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

True / False Questions

106. Select True or False: An ion is an atom or group of atoms that has a net positive or negative charge.
TRUE

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Molecules and Ions
Topic: Components of Matter

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Multiple Choice Questions

107. A molecule of antifreeze, ethylene glycol, has the formula $C_2H_4(OH)_2$. How many atoms are there in one molecule of antifreeze?
A. 10
B. 8
C. 6
D. 3
E. None of the above

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Chemical Formulas
Topic: Components of Matter

108. How many carbon atoms are in one molecule of $CH_3(CH_2)_3CH_3$?
A. 10
B. 8
C. 5
D. 3
E. None of the above

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Chemical Formulas
Topic: Components of Matter

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109.

How many hydrogen atoms are in one molecule of $CH_3(CH_2)_3CH_3$?

A. 10
B. 12
C. 14
D. 16
E. None of the above

Bloom's Level: 3. Apply
Difficulty: Easy
Gradable: automatic
Section: 02.05
Subtopic: Chemical Formulas
Topic: Components of Matter

110. The formula for isopropyl alcohol is sometimes written as $(CH_3)_2CHOH$ to better indicate how the atoms are connected. How many hydrogen atoms would be contained in 3 dozen isopropyl alcohol molecules?
A. 36
B. 180
C. 242
D. 288
E. None of the above

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.05
Subtopic: Chemical Formulas
Topic: Components of Matter

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True / False Questions

111. Select True or False: An allotrope is one of the two or more distinct forms of an element.
TRUE

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.06
Subtopic: Chemical Formulas
Topic: Components of Matter

112. Select True or False: An empirical formula tell us which ions are present in a compound and gives the whole-number ratio of the atoms of these elements in the compound.
FALSE

Bloom's Level: 2. Understand
Difficulty: Easy
Gradable: automatic
Section: 02.06
Subtopic: Chemical Formulas
Topic: Components of Matter

Multiple Choice Questions

113. Give the formula for potassium oxide.
A. KO
B. KO_2
C. K_2O
D. K_2O_4
E. KO_3

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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114. Give the formula for magnesium chloride.
A. $MgCl$
B. Mg_2Cl
C. $MnCl_2$
D. $MgCl_2$
E. $MnCl$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

115. Give the formula for carbon disulfide.
A. CsS_2
B. C_3S_4
C. C_2S
D. CS
E. CS_2

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

116. Give the formula for potassium hydroxide.
A. KOH
B. $K(OH)_2$
C. KO
D. $K_{2(}OH)_4$
E. $K(OH)_3$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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117. Give the formula for nickel(II) sulfite.
A. NiSO
B. $NiSO_3$
C. Ni_2SO_4
D. $Ni_2(SO_3)$
E. NiS_2

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

118. Name the following binary compound: FeS.
A. Iron sulfide
B. Iron (I) sulfide
C. Iron (II) sulfide
D. Iron sulfite
E. Iron (I) sulfite

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

119. Name the following binary compound: NaH.
A. Sodium hydroxide
B. Nitrogen hydroxide
C. Sodium hydrogen
D. Sodium hydride
E. Sodium halide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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120. Name the following binary compound: $MnCl_2$.
A. Magnesium chloride
B. Manganese chloride (II)
C. Manganese (II) chloride
D. Manganese (I) chloride
E. Magnesium (II) chloride

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

121. The following binary compound, Fe_2O_3, can be named Iron (III) oxide. What is another acceptable name for the compound?
A. Iron trioxide
B. Ferric oxide
C. Ferrous oxide
D. Hydrated iron
E. Diiron oxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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122. The following compound, $CuCO_3$, can be named copper (II) carbonate. What is another acceptable name for the compound?
A. Cuprous carbonate
B. Copper carbon oxide
C. Cupric trioxide
D. Cupric carbontrioxide
E. Cupric carbonate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

123. Name the following compound: K_3PO_4.
A. Tripotassium phosphorus tetraoxide
B. Potassium phosphate
C. Tripotassium phosphate
D. Potassium phosphite
E. Potassium phosphide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

124. Name the following compound: $Al(NO_2)_2$.
A. Aluminum nitrate
B. Aluminum dinitrate
C. Aluminum dinitrite
D. Aluminum nitrite
E. aluminum dinitrogen oxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

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125. Name the following compound: Cl_2O_7.
A. Chlorine oxide
B. Dichlorine heptoxide
C. Dichlorine hexoxide
D. Dichlorine octaoxide
E. Dichlorine sevenoxide

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

126. Give the formula of magnesium nitrate.
A. $MnNO_3$
B. $Mg(NO_3)_2$
C. $Mg(NO_2)_2$
D. $Mn(NO_3)_2$
E. MgNO

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Chemical Formulas

127. Give the formula of calcium phosphate.
A. $Ca_3(PO_4)_2$
B. $Ca_2(PO_4)_2$
C. $Ca_3(PO_4)_3$
D. $Ca_2(PO_4)_4$
E. $Ca_4(PO_4)_2$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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128. Give the formula of iron(II) phosphate.
A. $Fe_3(PO_4)_2$
B. $Fe_2(PO_4)_2$
C. $Fe_3(PO_4)_3$
D. $Fe_2(PO_4)_4$
E. $Fe_4(PO_4)_2$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

129. Give the formula of copper(II) bromide.
A. Cu_2Br
B. $CuBr_2$
C. Cu_3Br_4
D. Cu_2B
E. Cu_2Br_4

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

130. Give the formula of ammonium sulfate.
A. $(NH_4)_2SO_3$
B. $NH_4\ SO_4$
C. $(NH_4)_3SO_4$
D. $(NH_4)_2SO_4$
E. $(NH_4)_2(SO_4)_2$

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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True / False Questions

131. Select True or False: The formula of hydrochloric acid is HCl.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

132. Select True or False: The formula of carbonic acid is HCO_3.
FALSE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

133. Select True or False: The formula of nitrous acid is HNO_3.
FALSE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

134. Select True or False: The formula of sulfuric acid is H_2SO_4.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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135. Select True or False: The name of HF is hydrofluoric acid.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

Multiple Choice Questions

136. What is the name of H_3PO_3?
A. Phosphoric acid
B. Phosphorous acid
C. Hydrophosphoric acid
D. Hydrophosphorous acid
E. None of the above

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Nomenclature
Topic: Components of Matter

137. What is the correct formula of ammonia?
A. NH_2
B. NH
C. NH_3
D. AH_3
E. N_2H_4

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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138. What is the formula of lead(II) chloride?
A. $PbCl$
B. $PbCl_2$
C. Pb_2Cl
D. $PbCl_3$
E. Pb_2Cl_2

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

True / False Questions

139. Select True or False: The formula of calcium carbonate is $CaCO_3$.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

Multiple Choice Questions

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140. Of the following which is the formula of an anion that contains a metal?
A. $Cr_2O_7^{2-}$
B. NH_4^+
C. SO_4^{2-}
D. SO_3^{2-}
E. NO_3^-

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

True / False Questions

141. Select True or False: The following is the formula of a cation that contains a nonmetal: NH_4^+.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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Multiple Choice Questions

142. Which of the following is an example of an anion that contains a metal?
A. Ammonium
B. Chromate
C. Sulfate
D. Nitrate
E. Phosphate

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

True / False Questions

143. Select True or False: The following list shows the nitride ion, nitrate ion, and nitrite ion, in order.
N^{3-}, NO_3^-, and NO_2^-
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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144. Select True or False: The following list shows the sulfide ion, sulfate ion, and sulfite ion, in order.
SO_4^{2-}, SO_3^{2-}, S^{2-}
FALSE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

Multiple Choice Questions

145. Which list shows the correct order for the chloride ion, chlorate ion, and perchlorate ion, in that order?
A. ClO_3^-, and ClO_4^- , and Cl^-
B. ClO_4^- , ClO_3^-, and, Cl^-
C. Cl^-, ClO_4^- , and ClO_3^-,
D. Cl^-, ClO_3^-, and ClO_4^-
E. ClO_3^-, ClO_4^-, and Cl^-

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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True / False Questions

146. Select True or False: The correct order for chloric acid, chlorous acid, and hypochlorous acid, is in this order: $HClO_3$, $HClO_2$, HClO in that order.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

Multiple Choice Questions

147. Which of the following is the correct formula for the ammonium ion?
A. NH_3
B. NH_2
C. NH_4^+
D. NH_4^-
E. NH_2^+

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

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148. What is the formula for dinitrogen monoxide?
A. N_2O
B. NO
C. NO_2
D. N_2O_2
E. 2NO

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

True / False Questions

149. Select True or False: The correct formula for dibromine heptoxide is Br_2O_6.
FALSE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

150. Select True or False: The correct formula for xenon difluoride is XF_2.
FALSE

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Difficulty: Medium
Gradable: automatic
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Subtopic: Chemical Formulas
Topic: Components of Matter

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Multiple Choice Questions

151. What is the correct formula for xenon hexafluoride?
A. X_6F
B. Xe_6F
C. XeF_6
D. Xe_6F_6
E. XF_6

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

True / False Questions

152. Select True or False: The correct formula for the compound hydrogen peroxide is H_2O_2.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.07
Subtopic: Chemical Formulas
Topic: Components of Matter

153. Select True or False: The correct name of the compound CH_3CH_2OH is ethanol.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Nomenclature
Topic: Components of Matter

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Multiple Choice Questions

154. What is the correct name of the compound $CH_3CH_2NH_2$?
A. Methyl, ethyl amine
B. Ethylene ammonia
C. Aminoethylene
D. Ethylamine
E. Ethylammonia

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Nomenclature
Topic: Components of Matter

True / False Questions

155. Select True or False: The correct formula for octane is C_8H_{18}.
TRUE

Bloom's Level: 3. Apply
Difficulty: Medium
Gradable: automatic
Section: 02.08
Subtopic: Chemical Formulas
Topic: Components of Matter

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Multiple Choice Questions

156. What is the formula for nonane?
A. C_8H_{18}
B. C_9H_{20}
C. $C_{10}H_{20}$
D. C_9H_{22}
E. C_9H_{24}

Bloom's Level: 3. Apply
Difficulty: Medium
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Subtopic: Chemical Formulas
Topic: Components of Matter

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