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Chapter 02

1. Which of the following statements concerning atomic structure is/are correct?
    1. Neutrons and electrons are found in space as a cloud around the nucleus.
    2. The nucleus contains all the positive charge of an atom.
    3. Electrons surround the nucleus and account for the majority of an atom's volume.

    a. 1 only b. 2 only c. 3 only d. 2 and 3 e. 1, 2, and 3

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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2. Atoms are made of three subatomic particles. What are these particles and their charges?
    a. proton (+1), neutron (0), and electron (−1)
    b. proton (−1), neutron (+1), and electron (0)
    c. proton (+1), neutron (−1), and electron (0)
    d. proton (0), neutron (+1), and electron (−1)
    e. proton (−1), neutron (0), and electron (+1)

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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3. Arrange the subatomic particles in order of their increasing mass.
    a. Electron mass = proton mass = neutron mass
    b. Electron mass = neutron mass < proton mass
    c. Electron mass = proton mass < neutron mass
    d. Electron mass < proton mass < neutron mass
    e. Electron mass < proton mass = neutron mass

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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4. Atomic number is equal to the _____ in the nucleus of an atom.
    a. number of electrons
    b. number of protons
    c. number of protons minus the number of neutrons

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d. sum of the number of electrons and neutrons
e. sum of the number of neutrons and protons

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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5. The atomic number of fluorine is _____.
a. 7 b. 9 c. 10 d. 19
e. 13

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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6. Which of the following statements is/are correct?
1. A hydrogen atom with one proton and zero neutrons is assigned a mass of exactly one atomic mass unit.
2. One atomic mass unit is equivalent to 9.11×10^{-28} g.
3. A carbon atom with six protons and six neutrons is assigned a mass of exactly 12 atomic mass units.

a. 1 only b. 2 only c. 3 only d. 1 and 2
e. 1, 2, and 3

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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7. What is the mass number of an atom of argon with 22 neutrons?
a. 2 b. 18 c. 22 d. 40
e. 44

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass

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8. A neutral atom of an isotope ^{200}Hg contains _____.
   a. 200 neutrons and 280 electrons
   b. 80 protons and 200 neutrons
   c. 200 protons and 120 electrons
   d. 200 protons, 80 neutrons, and 200 electrons
   e. 80 protons and 120 neutrons

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.2 Isotopes and Atomic weight
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9. How many protons are there in an atom of scandium-45?
   a. 25 b. 66 c. 20 d. 21 e. 24

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
NOTES: Dynamic Question
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10. How many protons, neutrons, and electrons are present in an atom of iron-59?
   a. 26 protons, 33 neutrons, and 59 electrons
   b. 26 protons, 33 neutrons, and 33 electrons
   c. 26 protons, 33 neutrons, and 26 electrons
   d. 59 protons, 26 neutrons, and 59 electrons
   e. 59 protons, 26 neutrons, and 26 electrons

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
NOTES: Dynamic Question
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11. What is the mass of chlorine-35 relative to carbon-12?

a. 0.657 b. 0.522 c. 1.52 d. 2.92 e. 23

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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12. Which of the following atoms contains the least protons?

a. ^{232}Th b. ^{231}Pa c. ^{245}Pu d. ^{238}U

e. ^{232}Pa

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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13. Which of the following atoms contains more protons than neutrons?

a. $^{1}_{1}H$ b. $^{19}_{9}F$ c. $^{34}_{16}S$ d. $^{24}_{12}Mg$ e. $^{4}_{2}He$

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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14. Which of the following is the correct atomic symbol for an element with 17 protons and 18 neutrons?

a. $^{35}_{17}Ar$ b. $^{18}_{17}Ar$ c. $^{35}_{17}Cl$ d. $^{17}_{18}Ar$

e. $^{18}_{17}Cl$

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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15. Which of the following elements does 'X' represent in $^{58}_{28}X$?

a. Ni b. Zn c. Rn d. Ce
e. Pd

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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16. Which of the following is the correct atomic symbol for an element that has 30 neutrons and a mass number of 55?

a. At b. Zn c. Co d. Mn
e. Cs

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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17. How many neutrons are there in an atom of copper-63 ?

a. 29 b. 2 c. 92 d. 63
e. 34

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
NOTES: Dynamic Question
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18. Which of the following atoms contains the largest number of neutrons?

a. $^{42}_{20}Ca$ b. $^{39}_{19}K$ c. $^{37}_{17}Cl$ d. $^{41}_{19}K$ e. $^{42}_{18}Ar$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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19. An atom that has the same number of neutrons as nickel-59 is _____.

a. ^{58}Zn b. ^{58}Co c. ^{57}Cr d. ^{58}Mn

e. ^{59}Zn

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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20. Two isotopes of a given element will have the same number of _____, but a different number of _____ in their nucleus.

a. protons; electrons
b. electrons; protons
c. protons; neutrons
d. neutrons; protons
e. electrons; neutrons

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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21. If two different isotopes have the same atomic number, it means that _____.

a. they have the same atomic mass
b. they have the same atomic number
c. they have the same number of protons
d. they have the same number of electrons
e. they have the same number of neutrons

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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22. Which of the following atomic symbols represents an isotope of ^{113}Cd?

a. ^{112}Ag b. ^{114}In c. ^{113}In d. ^{114}Cd

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e. ^{113}Ag

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.2 Isotopes and Atomic Weight
NOTES: Dynamic Question
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23. Which of the following statements is true concerning ^{16}O and ^{17}O?

a. They have the same number of neutrons.
b. They are isotopes.
c. They have the same relative atomic mass.
d. They have the same mass number.
e. They have different chemical properties.

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.2 Isotopes and Atomic Weight
NOTES: Dynamic Question
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24. The masses of isotopes and their abundances are determined experimentally using _____.

a. a mass spectrometer
b. an analytical balance
c. a centrifuge
d. distillation
e. electrolysis

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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25. A sample of an element consists of two isotopes. The percent abundance of one of the isotopes is 75.0%. What is the percent abundance of the other isotope?

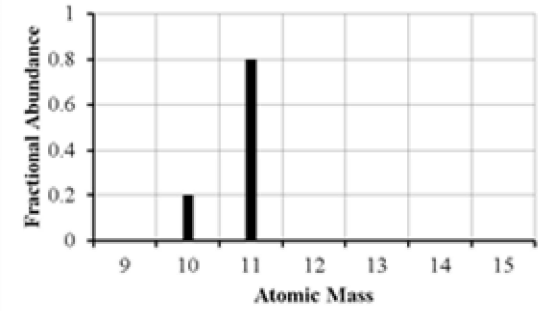
a. 62.5% b. 37.5% c. 12.5% d. 75.0%
e. 25.0%

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ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.2 Isotopes and Atomic Weight
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26. The mass spectrum of an element with two naturally occurring isotopes is shown below. What is the best estimate of the element's (average) atomic weight?



a. 10 amu b. 11 amu c. 10.8 amu d. 10.2 amu e. 10.5 amu

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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27. Lithium has two naturally occurring isotopes, ^{6}Li and ^{7}Li. The atomic weight of lithium is 6.941. Which of the following statements concerning the relative abundance of each isotope is correct?

a. The abundance of ^{7}Li is greater than ^{6}Li.
b. The abundance of ^{7}Li is less than ^{6}Li.
c. The abundance of ^{6}Li is equal to the abundance of ^{7}Li.
d. Not enough data is provided to determine the correct answer.
e. Based on the atomic mass, only ^{7}Li occurs naturally.

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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28. The element chlorine has two stable isotopes, chlorine-35 with an atomic mass of 34.97 u and chlorine-37 with an atomic mass of 36.97 u. From the atomic weight found on the periodic table, one can conclude that _____.

a. both isotopes have the same percent natural abundance
b. there is an isotope of nitrogen with an atomic mass of 35.45 u
c. chlorine-35 has the highest percent natural abundance
d. chlorine-37 has the highest percent natural abundance
e. there is an isotope of nitrogen with an atomic mass of 37.95 u

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.2 Isotopes and Atomic Weight
NOTES: OWL
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29. Rubidium has two naturally occurring isotopes. The atomic weight of Rb is 85.4678 u. If 72.15% of Rb is found as Rb-85 (84.9117 u), what is the mass of the other isotope?

a. 0.56 u b. 85.68 u c. 86.68 u d. 86.02 u
e. 83.47 u

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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30. An element consists of three isotopes. The abundance of one isotope is 92.21% and its atomic mass is 27.97693 u. The abundance of the second isotope is 4.70% and its atomic mass is 28.97649 u. The atomic mass of the third isotope is 29.97376 u. What is the atomic weight of the element?

a. 28.09 u b. 28.98 u c. 28.96 u d. 29.87 u e. 29.07 u

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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31. Naturally occurring element X exists in three isotopic forms: X-28 (27.979 u, 90.64% abundance), X-29 (28.976 u, 4.00% abundance), and X-30 (29.974 u, 5.36% abundance). Calculate the atomic weight of X.

a. 29.64 u b. 28.13 u c. 28.99 u d. 29.83 u
e. 27.15 u

ANSWER: b

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POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: 2.2 Isotopes and Atomic Weight
NOTES: Dynamic Question
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32. A certain element consists of two stable isotopes. The first has a mass of 14.0031 amu and a percent natural abundance of 99.63%. The second has a mass of 15.001 amu and a percent natural abundance of 0.37%. What is the atomic weight of the element?

a. 13.95 amu b. 14.00 amu c. 14.01 amu d. 14.50 amu
e. 19.50 amu

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
NOTES: Dynamic Question | OWL
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33. Copper has an atomic weight of 63.55 u. If 69.17% of copper exists as ^{63}Cu (62.93960 u), what is the identity and the atomic mass of the other isotope?

a. Cu-64; 63.82 u
b. Cu-64; 64.16 u
c. Cu-65; 64.16 u
d. Cu-65; 64.92 u
e. Cu-66; 65.91 u

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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34. Silver has two stable isotopes with masses of 106.90509 u and 108.9047 u. The atomic weight of silver is 107.868 u. What is the percent abundance of each isotope?

a. 50.0% ^{107}Ag and 50.0% ^{109}Ag
b. 51.8% ^{107}Ag and 48.2% ^{109}Ag
c. 55.4% ^{107}Ag and 44.6% ^{109}Ag
d. 48.2% ^{107}Ag and 51.8% ^{109}Ag

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e. 44.6% ^{107}Ag and 55.4% ^{109}Ag

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
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35. The elements in groups 1A-8A are known as the _____.
a. main group elements
b. transition metals
c. halogens
d. metalloids or semimetals
e. noble gases

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.3 The Periodic Table
NOTES: Dynamic Question
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36. Which of the following statements is/are correct?
1. The group 3A elements are also known as the chalcogens.
2. The noble gases are sometimes called rare earth elements.
3. The halogens, or group 7A elements, all exist as diatomic molecules.

a. 1 only b. 2 only c. 3 only d. 2 and 3
e. 1, 2, and 3

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
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37. Which of the following elements is present in the fourth period of Group 3A?
a. Sb b. Ga c. In d. Si
e. Tl

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice

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HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
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38. Which of the following elements is present in the third period of group 7A?
    a. S b. Cl_2 c. I_2 d. H_2
    e. Ar
ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
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39. Which of the following statements is not true about the element vanadium?
    a. It is a metal.
    b. It has chemical and physical properties most similar to krypton.
    c. It is in period 4.
    d. It has chemical and physical properties most similar to silver.
    e. It is in group 5B.
ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.3 The Periodic Table
NOTES: Dynamic Question
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40. Which of the following groups of periodic table contains only nonmetals?
    a. 2A b. 3A c. 5A d. 6A
    e. 7A
ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
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41. Which of the following elements belongs to the alkaline earth metals series?
    a. Barium b. Potassium c. phosphorus d. Bromine

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e. Argon

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.3 The Periodic Table
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42. Which of the following elements is present in fourth period of group 3?

a. Flourine b. Chlorine c. Barium d. Argon
e. Sodium

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.3 The Periodic Table
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43. What is the common name of the group that has an element with 38 protons in its nucleus?

a. Transition metals
b. Halogens
c. Noble gases
d. Alkaline earth metals
e. Alkali metals

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.3 The Periodic Table
NOTES: Dynamic Question | OWL
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44. Which of the following elements is not a metalloid?

a. Boron b. Selenium c. Germanium d. Arsenic
e. Silicon

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False

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TOPICS: 2.3 The Periodic Table
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45. The formula of acetic acid, CH_3CO_2H, is an example of a(n) _____.
    a. condensed formula
    b. empirical formula
    c. structural formula
    d. ionic compound formula
    e. elemental formula

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.4 Molecules, Compounds, and Formulas
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46. $C_2H_2F_4$ is the formula for two possible molecules. $C_2H_2F_4$ is an example of a(n) _____.
    a. structural formula
    b. empirical formula
    c. condensed formula
    d. spatial formula
    e. molecular formula

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.4 Molecules, Compounds, and Formulas
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47. Which of the following atoms of elements is most likely to form a 2– ion?
    a. Potassium
    b. Magnesium
    c. Phosphorus
    d. Bromine
    e. Sulfur

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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48. Which of the following atoms of elements is most likely to form a 2+ ion?
    a. Scandium
    b. Calcium
    c. Aluminum
    d. Oxygen
    e. Fluorine

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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49. Which of the following sets of ions is present in sodium sulfate, Na_2SO_4?
    a. Na^+, S^{2-}, and O^{2-}
    b. Na^+, S^{2+}, and O^{2-}
    c. Na^+ and SO_4^{2-}
    d. Na^+, S^{2-}, and O^{2+}
    e. Na^+ and SO_4^-

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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50. Which of the following sets of ions is present in calcium hydrogen phosphate, $CaHPO_4$?
    a. Ca^{2+} and PO_4^{3-}
    b. Ca^{2+} and HPO_4^{2-}
    c. Ca^+ and HPO_4^-
    d. Ca^{3+} and HPO_4^{3-}
    e. Ca^{2+}, H^+, P^{3-}, and O^{2-}

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties

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51. What charge is likely possible on a monatomic silver cation?

a. 2–
b. 1–
c. 1+
d. 2+
e. 3+

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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52. For a nonmetal in Group 6A of the periodic table, the most common monatomic ion will have a charge of _____.

a. 3–
b. 2–
c. 1–
d. 1+
e. 2+

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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53. Scandium(III) sulfite is an ionic compound formed from Sc^{3+} and SO_3^{2-}. What is the correct way to represent the formula?

a. $ScSO_3^+$ b. $Sc(SO_3)_2^-$ c. $Sc^{3+}SO_3^{2-}$ d. $Sc_2(SO_3)_3$
e. $Sc_5(SO_3)_8$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: Dynamic Question
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54. Which of the following formulas is not correct?

a. $AlPO_4$ b. $KClO_4$ c. CaS d. $Na(NO_3)_2$ e. Na_2HPO_4

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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55. Which of the following is the correct formula for an ionic compound that contains barium ions and carbonate ions?

a. $BaCO_3$ b. $Ba(HCO_3)_2$ c. Ba_2CO_3 d. Ba_2C
e. $Ba(CO_3)_2$

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
DATE CREATED: 3/5/2014 6:34 PM
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56. The chemical formula for chromium(III) sulfate is _____.

a. $CrSO_4$ b. $Cr(SO_4)_3$ c. $Cr_2(SO_4)_3$ d. Cr_2SO_4
e. $Cr_3(SO_4)_2$

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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57. What is the charge on the sodium ion in Na_3P?

a. 3– b. 1– c. 0 d. 1+
e. 3+

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: Dynamic Question
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58. Which of the following is the correct formula for calcium nitrate?

a. CaN b. Ca_3N_2 c. $CaNO_2$ d. $Ca_3(NO_3)_2$

e. $Ca(NO_3)_2$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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59. Which of the following is the correct formula for potassium dihydrogen phosphate?

a. KH_2PO_4 b. K_2HPO_4 c. $K_2H_2PO_4$ d. $K_3H_2PO_4$

e. KH_2P

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
DATE CREATED: 3/5/2014 6:34 PM
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60. The formula for aluminum fluoride is _____.

a. AlF_3 b. AlF c. Al_2F d. AlF_4

e. AlF_2

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: Dynamic Question
DATE CREATED: 3/5/2014 6:34 PM
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61. Which of the following is the correct formula for cobalt(III) bromide?

a. CoBr b. $CoBr_3$ c. Co_2Br_3 d. Co_3Br_2

e. Co_3Br

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties

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62. Which of the following is the correct formula for manganese(III) sulfate?

a. $MnSO_4$ b. Mn_2SO_4 c. $Mn_3(SO_4)_2$ d. $Mn_2(SO_4)_3$
e. $Mn(SO_4)_2$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: Dynamic Question
DATE CREATED: 3/5/2014 6:34 PM
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63. The correct name for Cd^{2+} is _____.

a. monocadmium ion
b. cadmium(II) ion
c. cadmium(2) ion
d. cadmium(I) ion
e. cadmium

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: Dynamic Question
DATE CREATED: 3/5/2014 6:34 PM
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64. What is the symbol for an ion of an element that has 12 protons and 10 electrons?

a. Mg^{2+} b. Mg^{2-} c. Ne^{2+} d. Ne^{2-}
e. Ti^{2+}

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: Dynamic Question | OWL
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65. Which of the following is the correct name for the compound NH_4NO_3?

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a. Ammonia hydrogen nitrate
b. Ammonia hydrogen nitride
c. Ammonium nitric acid
d. Ammonium nitrate
e. Ammonium nitride

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
DATE CREATED: 3/5/2014 6:34 PM
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66. What is the formula for the compound that is formed of ammonium and bromide ions?

a. NH_3Br b. NH_4Br c. NH_3Br_2 d. NH_4Br_2
e. $(NH_4)_2Br$

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: OWL
DATE CREATED: 3/5/2014 6:34 PM
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67. Which of the following is the correct name for the compound SrCl2?

a. Strontium dichloride
b. Strontium dichlorine
c. Strontium(III) dichloride
d. Strontium chloride
e. Iodine strontide

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
DATE CREATED: 3/5/2014 6:34 PM
DATE MODIFIED: 1/31/2018 1:16 PM

68. Which of the following is the correct name for the compound Ca(CH3CO2)2?

a. Calcium(II) carbonate
b. Calcium carbonate
c. Calcium acetate
d. Acetic calcide

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e. Calcium carbonide

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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69. Which of the following statements concerning ionic compounds is/are correct?
    1. As ion charges increase, the attraction between oppositely charged ions increases.
    2. Ionic compounds are malleable and conduct electricity.
    3. Positive and negative ions are attracted to each other by electrostatic forces.

    a. 1 only b. 2 only c. 3 only d. 1 and 3

    e. 1, 2, and 3

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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70. Which of the following ionic compounds has the highest melting point?

    a. KBr b. MgO c. RbI d. $CaBr_2$

    e. CsCl

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
DATE CREATED: 3/5/2014 6:34 PM
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71. The correct name for the compound P_2F_4 is _____.
    a. diphosphorus tetrafluoride
    b. phosphorus fluoride
    c. diphosphide tetrafluoride
    d. diphosphorus tetrafluorine
    e. phosphorus tetrafluorine

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
NOTES: Dynamic Question
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72. Which of the following is the correct name for the compound CCl_4?
    a. Carbon chlorine
    b. Tetracarbon chloride
    c. Carbon tetrachloride
    d. Carbon(IV) chloride
    e. Tetrachlorocarbide
ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
DATE CREATED: 3/5/2014 6:34 PM
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73. Which of the following is the common name for the compound PH_3?
    a. Laughing gas
    b. Hydrazine
    c. Nitroglycerin
    d. Ammonia
    e. Phosphine
ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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74. You have 2.50 g of each of the following elements: Ca, Cu, Cs, C, and Cr. Which sample contains the largest number of atoms?
    a. Ca
    b. Cu
    c. Cs
    d. C
    e. Cr
ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False

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TOPICS: 2.6 Atoms, Molecules, and the Mole
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75. What is the molecular mass of cyclononane, C_9H_{18}?
    a. 13.02 g/mol
    b. 1963.92 g/mol
    c. 109.11 g/mol
    d. 126.24 g/mol
    e. 30.15 g/mol
ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.6 Atoms, Molecules, and the Mole
NOTES: Dynamic Question
DATE CREATED: 3/5/2014 6:34 PM
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76. Calculate the number of moles in 0.48 g of Cu.
    a. 0.033 mol
    b. 0.48 mol
    c. 31 mol
    d. 7.6×10^{-3} mol
    e. 1.3×10^{2} mol
ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
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77. What is the approximate mass of 0.71 mol Na?
    a. 1.2×10^{-24} g
    b. 12 g
    c. 16 g
    d. 0.031 g
    e. 32 g
ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False

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TOPICS: 2.6 Atoms, Molecules, and the Mole
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78. A 0.0050 g sample of boron contains _____ boron atoms.

a. 4.6×10^{-4}
b. 7.7×10^{-28}
c. 2.8×10^{20}
d. 3.1×10^{21}
e. 3.3×10^{22}

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
DATE CREATED: 3/5/2014 6:34 PM
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79. The molar mass of platinum is 195.08 g/mol. What is the mass of 1.00×10^2 Pt atoms?

a. 8.51×10^{-25} g
b. 3.24×10^{-24} g
c. 1.67×10^{-22} g
d. 3.24×10^{-22} g
e. 3.24×10^{-20} g

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
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80. A 0.4272 g sample of an element contains 2.241×10^{21} atoms. What is the symbol of the element?

a. In
b. Cs
c. Sb
d. Xe
e. Te

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice

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HAS VARIABLES: True
TOPICS: 2.6 Atoms, Molecules, and the Mole
NOTES: Dynamic Question
DATE CREATED: 8/12/2014 6:45 PM
DATE MODIFIED: 1/31/2018 11:50 PM

81. What mass of aluminum contains the same number of atoms as 3.0 g of lead?
    a. 23 g
    b. 0.014 g
    c. 3.0 g
    d. 0.39 g
    e. 0.11 g

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
DATE CREATED: 3/5/2014 6:34 PM
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82. A nail is coated with a 0.053 cm thick layer of zinc. The surface area of the nail is 8.59 cm^2. The density of zinc is 7.13 g/cm^3. How many zinc atoms are used in the coating?
    a. 5.9×10^{20} atoms
    b. 3.0×10^{22} atoms
    c. 3.8×10^{22} atoms
    d. 2.0×10^{24} atoms
    e. 1.3×10^{26} atoms

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
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83. Which of the following is the correct molar mass of calcium chloride hexahydrate?
    a. 75.53 g/mol
    b. 111.0 g/mol
    c. 117.0 g/mol
    d. 183.6 g/mol
    e. 219.1 g/mol

ANSWER: e
POINTS: 1

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Chapter 02

QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
DATE CREATED: 3/5/2014 6:34 PM
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84. Which of the following is the correct molar mass of sodium sulfate?
    a. 55.06 g/mol
    b. 119.1 g/mol
    c. 78.05 g/mol
    d. 142.0 g/mol
    e. 110.0 g/mol

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
DATE CREATED: 3/5/2014 6:34 PM
DATE MODIFIED: 1/31/2018 11:54 PM

85. Calculate the number of moles of aluminum oxide in 6.83 g of Al_2O_3.
    a. 6.70×10^{-2} mol
    b. 6.96×10^{2} mol
    c. 0.253 mol
    d. 0.127 mol
    e. 1.56×10^{-3} mol

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
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86. Calculate the mass of 8.04×10^{-3} mol of O_2.
    a. 2.51×10^{-4} g
    b. 5.03×10^{-4} g
    c. 0.129 g
    d. 3.89 g
    e. 0.257 g

ANSWER: e
POINTS: 1

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QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
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87. Calculate the mass of 0.50 mol of chromium(III) sulfide.

a. 2.5×10^{-3} g
b. 5.9×10^{-3} g
c. 42 g
d. 1.0×10^{2} g
e. 110 g

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
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88. How many hydrogen atoms are present in 1.0 g of NH_3?

a. 0.059 atoms
b. 0.18 atoms
c. 3.5×10^{22} atoms
d. 1.1×10^{23} atoms
e. 1.2×10^{22} atoms

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
DATE CREATED: 3/5/2014 6:34 PM
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89. How many bromide ions are present in 0.55 g of iron(III) bromide?

a. 1.1×10^{21} ions
b. 3.4×10^{21} ions
c. 3.3×10^{23} ions
d. 9.9×10^{23} ions
e. 2.9×10^{26} ions

ANSWER: b

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POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
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90. If 1.00 g of an unknown molecular compound contains 8.35×10^{21} molecules, what is its molar mass?
    a. 44.0 g/mol
    b. 66.4 g/mol
    c. 72.1 g/mol
    d. 98.1 g/mol
    e. 132 g/mol

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
DATE CREATED: 3/5/2014 6:34 PM
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91. Calculate the mass percent of chlorine in magnesium chloride.
    a. 25.53%
    b. 37.24%
    c. 40.67%
    d. 59.33%
    e. 74.47%

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
DATE CREATED: 3/5/2014 6:34 PM
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92. Which of the following is the correct mass percent of each element in sulfuric acid, H_2SO_4?
    a. 2.055% H, 32.69% S, and 65.25% O
    b. 1.028% H, 32.69% S, and 66.28% O
    c. 28.57% H, 14.29% S, and 57.17% O
    d. 1.028% H, 33.72% S, and 65.25% O
    e. 2.016% H, 32.07% S, and 65.91% O

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice

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HAS VARIABLES: False
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
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93. Determine the empirical formula of an oxide of nitrogen that contains 46.67 % nitrogen by mass.

a. N_2O_5 b. N c. N_2O d. N_{22}
e. NO

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
NOTES: Dynamic Question
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94. A molecule is found to contain 47.35% C, 10.60% H, and 42.05% O by mass. Determine the empirical formula for this molecule.

a. C_2H_6O b. C_3H_4O c. $C_3H_8O_2$ d. $C_4H_6O_2$
e. $C_4H_8O_3$

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
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95. An ionic compound has the formula MCl_2. The mass of 0.3011 mol of the compound is 62.69 grams. What is the identity of the metal?

a. Nickel (Ni) b. Copper (Cu) c. Tin (Sn) d. Mercury (Hg)
e. Barium (Ba)

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
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96. The fully hydrated form of sodium sulfate is the decahydrate, $Na_2SO_4 \cdot 10H_2O$. This compound dehydrates (loses some waters of hydration) when heated. A sample of partially dehydrated sodium sulfate was found to have a molar mass of 232 g/mol. How many water molecules are found per formula unit in in this sample? (Determine n in $Na_2SO_4 \cdot nH_2O$).

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a. 5 molecules of water
b. 8 molecules of water
c. 10 molecules of water
d. 6 molecules of water
e. 1 molecules of water

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
NOTES: Dynamic Question
DATE CREATED: 3/5/2014 6:34 PM
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97. A 3.592 g sample of hydrated magnesium bromide, $MgBr_2 \cdot xH_2O$, is dried in an oven. When the anhydrous salt is removed from the oven, its mass is 2.263 g. What is the value of x?

a. 1 b. 3 c. 6 d. 8 e. 12

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
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98. A 2.000 g sample of $MgCl_2 \cdot xH_2O$ is dried in an oven. When the anhydrous salt is removed from the oven, its mass is 0.9366 g. What is the value of x?

a. 1 b. 3 c. 6 d. 8 e. 12

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.7 Chemical Analysis: Determining Compound Formulas
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99. Elements that have the same number of protons, but differ in their number of neutrons are called _____.

ANSWER: isotopes
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.2 Isotopes and Atomic Weight
DATE CREATED: 3/5/2014 6:34 PM
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100. Pure oxygen can exist as O_2 or O_3. Elements that exist in more than one distinct form are called _____.
ANSWER: allotropes
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
DATE CREATED: 3/5/2014 6:34 PM
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101. Oxygen and _____ are the two most abundant elements in the Earth's crust.
ANSWER: silicon
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
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102. Write the names of metalloids present in the periodic table.
ANSWER: Boron, silicon, germanium, arsenic, (antimony, and tellurium)
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
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103. In a reaction, metals generally lose electrons to become _____, and nonmetals gain electrons to become anions.
ANSWER: cations
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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104. Which ionic compound has the stronger force of attraction between anions and cations: sodium bromide or potassium bromide?
ANSWER: The force of attraction is stronger for sodium bromide. The electrostatic attraction between anions and cations decreases as the separation of the ions increases. The potassium ion will be farther from the bromide ion than the sodium ion due to its larger ionic radius.
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False

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TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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105. The numerical quantity of a mole, 6.022×10^{23}, is defined as the number of atoms in a specific mass of an element. What is the mass and the identity of the element used to define one mole?
ANSWER: A mole is equal to the number of atoms in 12.00 grams of carbon-12 isotope.
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.6 Atoms, Molecules, and the Mole
DATE CREATED: 3/5/2014 6:34 PM
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106. The building blocks of atoms (neutrons, protons, and electrons) are called _____ particles.
ANSWER: subatomic
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
DATE CREATED: 3/5/2014 6:34 PM
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107. William Crookes was the first to observe particles produced from a cathode ray tube. These particles are known as _____.
ANSWER: electrons
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
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108. Millikan's oil drop experiment determined the charge of the _____.
ANSWER: electron
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: False
TOPICS: 2.3 The Periodic Table
DATE CREATED: 3/5/2014 6:34 PM
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109. One atomic mass unit is equal to one-twelfth of the mass of an atom of _____.
a. carbon with six protons and six neutrons
b. hydrogen with one proton and one neutron

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c. oxygen with eight protons and eight neutrons
d. sodium with 11 atoms and 12 neutrons
e. magnesium with 12 atoms and 12 neutrons

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.1 Atomic Structure, Atomic Number, and Atomic Mass
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110. Which of the following is true about negative ions?
a. Negatively charged ions of the Group 6A elements are called halide ions.
b. Negatively charged ions of the Group 1A and 2A elements are called halide ions.
c. Polyatomic negative ions containing oxygen are called oxoanions.
d. Polyatomic negative ions are very rare.
e. Monoatomic negative ions are referred to as oxoanions.

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: False
TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties
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