

***Chemistry and Chemical Reactivity 10th edition Kotz  
Test Bank***

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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  $9.11 \times 10^{-28}$  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  $^{200}\text{Hg}$  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

**NOTES:** Dynamic Question

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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.  $^{232}_{90}\text{Th}$     b.  $^{231}_{91}\text{Pa}$     c.  $^{245}_{94}\text{Pu}$     d.  $^{238}_{92}\text{U}$   
e.  $^{232}_{91}\text{Pa}$

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.  $^1_1\text{H}$     b.  $^{19}_9\text{F}$     c.  $^{34}_{16}\text{S}$     d.  $^{24}_{12}\text{Mg}$     e.  $^4_2\text{He}$

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.  $^{35}_{17}\text{Ar}$     b.  $^{18}_{17}\text{Ar}$     c.  $^{35}_{17}\text{Cl}$     d.  $^{17}_{18}\text{Ar}$   
e.  $^{18}_{17}\text{Cl}$

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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15. Which of the following elements does 'X' represent in  $^{58}_{28}\text{X}$ ?

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

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.  $^{58}\text{Zn}$     b.  $^{58}\text{Co}$     c.  $^{57}\text{Cr}$     d.  $^{58}\text{Mn}$   
e.  $^{59}\text{Zn}$

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  $^{113}\text{Cd}$ ?

- a.  $^{112}\text{Ag}$     b.  $^{114}\text{In}$     c.  $^{113}\text{In}$     d.  $^{114}\text{Cd}$

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e.  $^{113}\text{Ag}$

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  $^{16}\text{O}$  and  $^{17}\text{O}$ ?

- 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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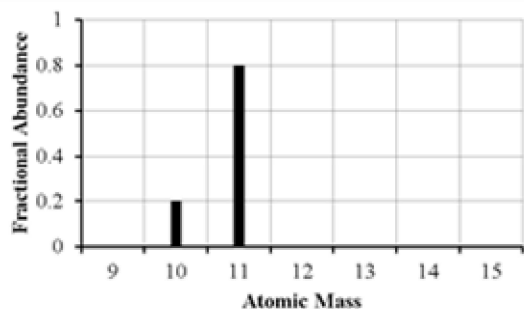
25. A sample of an element consists of two isotopes. The percent abundance of one of the isotopes is 75.0%. What is the percent abundance of the other isotope?

- 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,  ${}^6\text{Li}$  and  ${}^7\text{Li}$ . 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  ${}^7\text{Li}$  is greater than  ${}^6\text{Li}$ .  
b. The abundance of  ${}^7\text{Li}$  is less than  ${}^6\text{Li}$ .  
c. The abundance of  ${}^6\text{Li}$  is equal to the abundance of  ${}^7\text{Li}$ .  
d. Not enough data is provided to determine the correct answer.  
e. Based on the atomic mass, only  ${}^7\text{Li}$  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  $^{63}\text{Cu}$  (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%  $^{107}\text{Ag}$  and 50.0%  $^{109}\text{Ag}$
- b. 51.8%  $^{107}\text{Ag}$  and 48.2%  $^{109}\text{Ag}$
- c. 55.4%  $^{107}\text{Ag}$  and 44.6%  $^{109}\text{Ag}$
- d. 48.2%  $^{107}\text{Ag}$  and 51.8%  $^{109}\text{Ag}$

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

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<sub>2</sub>
- c. I<sub>2</sub>
- d. H<sub>2</sub>
- 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

**NOTES:** Dynamic Question

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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

**NOTES:** Dynamic Question | OWL

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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

## Chapter 02

TOPICS: 2.3 The Periodic Table

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45. The formula of acetic acid,  $\text{CH}_3\text{CO}_2\text{H}$ , 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.  $\text{C}_2\text{H}_2\text{F}_4$  is the formula for two possible molecules.  $\text{C}_2\text{H}_2\text{F}_4$  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

*DATE CREATED:* 3/5/2014 6:34 PM

*DATE MODIFIED:* 1/31/2018 11:50 AM

49. Which of the following sets of ions is present in sodium sulfate,  $\text{Na}_2\text{SO}_4$ ?

- a.  $\text{Na}^+$ ,  $\text{S}^{2-}$ , and  $\text{O}^{2-}$
- b.  $\text{Na}^+$ ,  $\text{S}^{2+}$ , and  $\text{O}^{2-}$
- c.  $\text{Na}^+$  and  $\text{SO}_4^{2-}$
- d.  $\text{Na}^+$ ,  $\text{S}^{2-}$ , and  $\text{O}^{2+}$
- e.  $\text{Na}^+$  and  $\text{SO}_4^-$

*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

*DATE MODIFIED:* 1/31/2018 11:50 AM

50. Which of the following sets of ions is present in calcium hydrogen phosphate,  $\text{CaHPO}_4$ ?

- a.  $\text{Ca}^{2+}$  and  $\text{PO}_4^{3-}$
- b.  $\text{Ca}^{2+}$  and  $\text{HPO}_4^{2-}$
- c.  $\text{Ca}^+$  and  $\text{HPO}_4^-$
- d.  $\text{Ca}^{3+}$  and  $\text{HPO}_4^{3-}$
- e.  $\text{Ca}^{2+}$ ,  $\text{H}^+$ ,  $\text{P}^{3-}$ , and  $\text{O}^{2-}$

*ANSWER:* b

*POINTS:* 1

*QUESTION TYPE:* Multiple Choice

*HAS VARIABLES:* False

*TOPICS:* 2.5 Ionic Compounds: Formulas, Names, and Properties

## Chapter 02

DATE CREATED: 3/5/2014 6:34 PM

DATE MODIFIED: 1/31/2018 11:51 AM

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

DATE CREATED: 3/5/2014 6:34 PM

DATE MODIFIED: 1/31/2018 12:52 PM

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

DATE CREATED: 3/5/2014 6:34 PM

DATE MODIFIED: 1/31/2018 12:52 PM

53. Scandium(III) sulfite is an ionic compound formed from  $\text{Sc}^{3+}$  and  $\text{SO}_3^{2-}$ . What is the correct way to represent the formula?

- a.  $\text{ScSO}_3^+$
- b.  $\text{Sc}(\text{SO}_3)_2^-$
- c.  $\text{Sc}^{3+}\text{SO}_3^{2-}$
- d.  $\text{Sc}_2(\text{SO}_3)_3$
- e.  $\text{Sc}_5(\text{SO}_3)_8$

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

DATE CREATED: 3/5/2014 6:34 PM

DATE MODIFIED: 1/31/2018 12:57 PM

## **Chapter 02**

54. Which of the following formulas is not correct?

- a.  $\text{AlPO}_4$     b.  $\text{KClO}_4$     c.  $\text{CaS}$     d.  $\text{Na}(\text{NO}_3)_2$     e.  $\text{Na}_2\text{HPO}_4$

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: 3/5/2014 6:34 PM

55. Which of the following is the correct formula for an ionic compound that contains barium ions and carbonate ions?

- a.  $\text{BaCO}_3$     b.  $\text{Ba}(\text{HCO}_3)_2$     c.  $\text{Ba}_2\text{CO}_3$     d.  $\text{Ba}_2\text{C}$   
e.  $\text{Ba}(\text{CO}_3)_2$

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

DATE MODIFIED: 1/31/2018 12:59 PM

56. The chemical formula for chromium(III) sulfate is \_\_\_\_\_.

- a.  $\text{CrSO}_4$     b.  $\text{Cr}(\text{SO}_4)_3$     c.  $\text{Cr}_2(\text{SO}_4)_3$     d.  $\text{Cr}_2\text{SO}_4$   
e.  $\text{Cr}_3(\text{SO}_4)_2$

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

DATE MODIFIED: 1/31/2018 1:01 PM

57. What is the charge on the sodium ion in  $\text{Na}_3\text{P}$ ?

- 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

DATE CREATED: 12/29/2017 4:36 AM

DATE MODIFIED: 2/1/2018 12:52 AM

## Chapter 02

58. Which of the following is the correct formula for calcium nitrate?

- a. CaN      b.  $\text{Ca}_3\text{N}_2$       c.  $\text{CaNO}_2$       d.  $\text{Ca}_3(\text{NO}_3)_2$   
e.  $\text{Ca}(\text{NO}_3)_2$

ANSWER: e

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 1:02 PM

59. Which of the following is the correct formula for potassium dihydrogen phosphate?

- a.  $\text{KH}_2\text{PO}_4$       b.  $\text{K}_2\text{HPO}_4$       c.  $\text{K}_2\text{H}_2\text{PO}_4$       d.  $\text{K}_3\text{H}_2\text{PO}_4$   
e.  $\text{KH}_2\text{P}$

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

DATE MODIFIED: 1/31/2018 1:03 PM

60. The formula for aluminum fluoride is \_\_\_\_\_.

- a.  $\text{AlF}_3$       b.  $\text{AlF}$       c.  $\text{Al}_2\text{F}$       d.  $\text{AlF}_4$   
e.  $\text{AlF}_2$

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

DATE MODIFIED: 1/31/2018 1:04 PM

61. Which of the following is the correct formula for cobalt(III) bromide?

- a.  $\text{CoBr}$       b.  $\text{CoBr}_3$       c.  $\text{Co}_2\text{Br}_3$       d.  $\text{Co}_3\text{Br}_2$   
e.  $\text{Co}_3\text{Br}$

ANSWER: b

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: False

TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties

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## Chapter 02

DATE CREATED: 3/5/2014 6:34 PM

DATE MODIFIED: 1/31/2018 1:05 PM

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

- a.  $\text{MnSO}_4$       b.  $\text{Mn}_2\text{SO}_4$       c.  $\text{Mn}_3(\text{SO}_4)_2$       d.  $\text{Mn}_2(\text{SO}_4)_3$   
e.  $\text{Mn}(\text{SO}_4)_2$

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

DATE MODIFIED: 1/31/2018 1:06 PM

63. The correct name for  $\text{Cd}^{2+}$  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

DATE MODIFIED: 1/31/2018 1:11 PM

64. What is the symbol for an ion of an element that has 12 protons and 10 electrons?

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

ANSWER: a

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

TOPICS: 2.5 Ionic Compounds: Formulas, Names, and Properties

NOTES: Dynamic Question | OWL

DATE CREATED: 3/5/2014 6:34 PM

DATE MODIFIED: 2/1/2018 2:07 AM

65. Which of the following is the correct name for the compound  $\text{NH}_4\text{NO}_3$ ?

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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

**DATE MODIFIED:** 1/31/2018 1:13 PM

66. What is the formula for the compound that is formed of ammonium and bromide ions?

- a.  $\text{NH}_3\text{Br}$
- b.  $\text{NH}_4\text{Br}$
- c.  $\text{NH}_3\text{Br}_2$
- d.  $\text{NH}_4\text{Br}_2$
- e.  $(\text{NH}_4)_2\text{Br}$

**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

**DATE MODIFIED:** 1/31/2018 1:15 PM

67. Which of the following is the correct name for the compound  $\text{SrCl}_2$ ?

- 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  $\text{Ca}(\text{CH}_3\text{CO}_2)_2$ ?

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

## **Chapter 02**

e. Calcium carbonide

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

DATE MODIFIED: 1/31/2018 1:17 PM

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

DATE CREATED: 3/5/2014 6:34 PM

DATE MODIFIED: 1/31/2018 1:18 PM

70. Which of the following ionic compounds has the highest melting point?

- a. KBr      b. MgO      c. RbI      d. CaBr<sub>2</sub>  
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

DATE MODIFIED: 1/31/2018 1:19 PM

71. The correct name for the compound P<sub>2</sub>F<sub>4</sub> 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

## **Chapter 02**

**TOPICS:** 2.5 Ionic Compounds: Formulas, Names, and Properties

**NOTES:** Dynamic Question

**DATE CREATED:** 3/5/2014 6:34 PM

**DATE MODIFIED:** 1/31/2018 11:43 PM

72. Which of the following is the correct name for the compound  $\text{CCl}_4$ ?

- 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

**DATE MODIFIED:** 1/31/2018 11:44 PM

73. Which of the following is the common name for the compound  $\text{PH}_3$ ?

- 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

**DATE CREATED:** 3/5/2014 6:34 PM

**DATE MODIFIED:** 1/31/2018 11:45 PM

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

## **Chapter 02**

**TOPICS:** 2.6 Atoms, Molecules, and the Mole

**DATE CREATED:** 3/5/2014 6:34 PM

**DATE MODIFIED:** 3/5/2014 6:34 PM

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

**DATE MODIFIED:** 8/4/2014 6:16 PM

76. Calculate the number of moles in 0.48 g of Cu.

- a. 0.033 mol
- b. 0.48 mol
- c. 31 mol
- d.  $7.6 \times 10^{-3}$  mol
- e.  $1.3 \times 10^2$  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 11:46 PM

77. What is the approximate mass of 0.71 mol Na?

- a.  $1.2 \times 10^{-24}$  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

## **Chapter 02**

**TOPICS:** 2.6 Atoms, Molecules, and the Mole

**DATE CREATED:** 3/5/2014 6:34 PM

**DATE MODIFIED:** 1/31/2018 11:47 PM

78. A 0.0050 g sample of boron contains \_\_\_\_\_ boron atoms.

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

**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

**DATE MODIFIED:** 1/31/2018 11:48 PM

79. The molar mass of platinum is 195.08 g/mol. What is the mass of  $1.00 \times 10^2$  Pt atoms?

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

**ANSWER:** e

**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 11:49 PM

80. A 0.4272 g sample of an element contains  $2.241 \times 10^{21}$  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

## **Chapter 02**

**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

**DATE MODIFIED:** 1/31/2018 11:51 PM

82. A nail is coated with a 0.053 cm thick layer of zinc. The surface area of the nail is  $8.59 \text{ cm}^2$ . The density of zinc is  $7.13 \text{ g/cm}^3$ . How many zinc atoms are used in the coating?

- a.  $5.9 \times 10^{20}$  atoms
- b.  $3.0 \times 10^{22}$  atoms
- c.  $3.8 \times 10^{22}$  atoms
- d.  $2.0 \times 10^{24}$  atoms
- e.  $1.3 \times 10^{26}$  atoms

**ANSWER:** b

**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:** 3/5/2014 6:34 PM

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

## **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

**DATE MODIFIED:** 1/31/2018 11:53 PM

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  $\text{Al}_2\text{O}_3$ .

a.  $6.70 \times 10^{-2}$  mol

b.  $6.96 \times 10^2$  mol

c. 0.253 mol

d. 0.127 mol

e.  $1.56 \times 10^{-3}$  mol

**ANSWER:** a

**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:** 2/1/2018 12:04 AM

86. Calculate the mass of  $8.04 \times 10^{-3}$  mol of  $\text{O}_2$ .

a.  $2.51 \times 10^{-4}$  g

b.  $5.03 \times 10^{-4}$  g

c. 0.129 g

d. 3.89 g

e. 0.257 g

**ANSWER:** e

**POINTS:** 1

## **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

**DATE MODIFIED:** 2/1/2018 12:06 AM

87. Calculate the mass of 0.50 mol of chromium(III) sulfide.

a.  $2.5 \times 10^{-3}$  g

b.  $5.9 \times 10^{-3}$  g

c. 42 g

d.  $1.0 \times 10^2$  g

e. 110 g

**ANSWER:** d

**POINTS:** 1

**QUESTION TYPE:** Multiple Choice

**HAS VARIABLES:** False

**TOPICS:** 2.6 Atoms, Molecules, and the Mole

**DATE CREATED:** 3/5/2014 6:34 PM

**DATE MODIFIED:** 2/1/2018 12:07 AM

88. How many hydrogen atoms are present in 1.0 g of  $\text{NH}_3$ ?

a. 0.059 atoms

b. 0.18 atoms

c.  $3.5 \times 10^{22}$  atoms

d.  $1.1 \times 10^{23}$  atoms

e.  $1.2 \times 10^{22}$  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

**DATE MODIFIED:** 2/1/2018 12:07 AM

89. How many bromide ions are present in 0.55 g of iron(III) bromide?

a.  $1.1 \times 10^{21}$  ions

b.  $3.4 \times 10^{21}$  ions

c.  $3.3 \times 10^{23}$  ions

d.  $9.9 \times 10^{23}$  ions

e.  $2.9 \times 10^{26}$  ions

**ANSWER:** b

## **Chapter 02**

**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:** 2/1/2018 12:09 AM

90. If 1.00 g of an unknown molecular compound contains  $8.35 \times 10^{21}$  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  
**DATE MODIFIED:** 8/4/2014 6:18 PM

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  
**DATE MODIFIED:** 2/1/2018 12:09 AM

92. Which of the following is the correct mass percent of each element in sulfuric acid,  $\text{H}_2\text{SO}_4$ ?
- 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

## **Chapter 02**

**HAS VARIABLES:** False

**TOPICS:** 2.7 Chemical Analysis: Determining Compound Formulas

**DATE CREATED:** 3/5/2014 6:34 PM

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93. Determine the empirical formula of an oxide of nitrogen that contains 46.67 % nitrogen by mass.

- a.  $\text{N}_2\text{O}_5$     b. N    c.  $\text{N}_2\text{O}$     d.  $\text{N}_{22}$   
e. NO

**ANSWER:** e

**POINTS:** 1

**QUESTION TYPE:** Multiple Choice

**HAS VARIABLES:** True

**TOPICS:** 2.7 Chemical Analysis: Determining Compound Formulas

**NOTES:** Dynamic Question

**DATE CREATED:** 3/5/2014 6:34 PM

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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.  $\text{C}_2\text{H}_6\text{O}$     b.  $\text{C}_3\text{H}_4\text{O}$     c.  $\text{C}_3\text{H}_8\text{O}_2$     d.  $\text{C}_4\text{H}_6\text{O}_2$   
e.  $\text{C}_4\text{H}_8\text{O}_3$

**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  $\text{MCl}_2$ . 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,  $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ . 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 this sample? (Determine n in  $\text{Na}_2\text{SO}_4 \cdot n\text{H}_2\text{O}$ ).

## **Chapter 02**

- 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,  $\text{MgBr}_2 \cdot x\text{H}_2\text{O}$ , 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

**DATE CREATED:** 3/5/2014 6:34 PM

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98. A 2.000 g sample of  $\text{MgCl}_2 \cdot x\text{H}_2\text{O}$  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

**DATE CREATED:** 3/5/2014 6:34 PM

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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

**DATE MODIFIED:** 2/1/2018 12:20 AM

## **Chapter 02**

100. Pure oxygen can exist as O<sub>2</sub> or O<sub>3</sub>. 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

**DATE MODIFIED:** 2/1/2018 12:20 AM

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

**DATE CREATED:** 3/5/2014 6:34 PM

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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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**DATE MODIFIED:** 2/1/2018 12:22 AM

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

**DATE CREATED:** 3/5/2014 6:34 PM

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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

## **Chapter 02**

**TOPICS:** 2.5 Ionic Compounds: Formulas, Names, and Properties

**DATE CREATED:** 3/5/2014 6:34 PM

**DATE MODIFIED:** 2/1/2018 12:26 AM

105. The numerical quantity of a mole,  $6.022 \times 10^{23}$ , 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

**DATE CREATED:** 3/5/2014 6:34 PM

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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

## **Chapter 02**

- 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

**DATE CREATED:** 2/1/2018 12:29 AM

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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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