Chemistry Atoms First 3rd edition Burdge Test Bank

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Chapter 2
Atoms and the Periodic Table

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

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Structure of the Atom
Topic: Components of Matter

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

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Difficulty: Easy
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Topic: Components of Matter

3. Which field of study made a big contribution toward understanding the composition of the atom?
A. electricity
B. radiation
C. solution chemistry
D. electrochemistry
E. quantum mechanics

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

4. Which of the following is a type of radioactive radiation that has no charge and is unaffected by external electric or magnetic fields?
A. α rays
B. β rays
C. γ rays
D. δ rays
E. ε rays

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Difficulty: Easy
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Topic: Components of Matter

5. Which of the following is a type of radioactive radiation that consists of positively charged particles and is deflected away from the positively charged plate?
A. α rays
B. β rays
C. γ rays
D. δ rays
E. ε rays

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

6. Which of the following is a type of radioactive radiation that consists of electrons and is deflected away from the negatively charged plate?
A. α rays
B. β rays
C. γ rays
D. δ rays
E. ε rays

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Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

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

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

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

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9. J. J. Thomson studied cathode ray particles (electrons) and was able to measure the mass/charge ratio. His results showed that
A. the mass/charge ratio varied as the cathode material was changed.
B. the charge was always a whole-number multiple of some minimum charge.
C. matter included particles much smaller than the atom.
D. atoms contained dense areas of positive charge.
E. atoms are largely empty space.

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Difficulty: Easy
Subtopic: Structure of the Atom
Topic: Components of Matter

10. Who is credited with measuring the mass/charge ratio of the electron?
A. Dalton
B. Chadwick
C. Thomson
D. Millikan
E. Rutherford

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Difficulty: Easy

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Subtopic: Structure of the Atom
Topic: Components of Matter

11. Who is credited with first measuring the charge of the electron?
A. Dalton
B. Gay-Lussac
C. Thomson
D. Millikan
E. Rutherford

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Structure of the Atom
Topic: Components of Matter

12. Millikan's oil-drop experiment
A. established the charge on an electron.
B. showed that all oil drops carried the same charge.
C. provided support for the nuclear model of the atom.
D. suggested that some oil drops carried fractional numbers of electrons.
E. suggested the presence of a neutral particle in the atom.

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Difficulty: Easy
Subtopic: Structure of the Atom
Topic: Components of Matter

13. Who is credited with discovering the atomic nucleus?
A. Dalton
B. Gay-Lussac
C. Thomson
D. Chadwick
E. Rutherford

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

14. Rutherford bombarded gold foil with alpha (α) particles and found that a small percentage of the particles were deflected. Which of the following was not accounted for by the model he proposed for the structure of the atom?
A. the small size of the nucleus
B. the charge on the nucleus
C. the total mass of the atom
D. the existence of protons
E. the presence of electrons outside the nucleus

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Difficulty: Easy
Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

15. Which one of the following statements about atoms and subatomic particles is correct?
A. rutherford discovered the atomic nucleus by bombarding gold foil with electrons
B. the proton and the neutron have identical masses.
C. the neutron's mass is equal to that of a proton plus an electron.
D. a neutral atom contains equal numbers of protons and electrons.
E. an atomic nucleus contains equal numbers of protons and neutrons.

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Bloom's Level: 2. Understand
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Difficulty: Medium

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Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

16. Who discovered the neutron, the subatomic particle having a neutral charge?
A. Millikan
B. Dalton
C. Chadwick
D. Rutherford
E. Thomson

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

17. What is the term for the number of protons in the nucleus of each atom of an element? It also indicates the number of electrons in the atom.
A. isotope number
B. mass number
C. mass-to-charge ratio
D. atomic number
E. atomic mass units

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

18. What is the term for the total number of neutrons and protons in the nucleus of each atom of an element?
A. isotope number
B. mass number
C. mass-to-charge ratio
D. atomic number
E. atomic mass units

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Subtopic: Structure of the Atom
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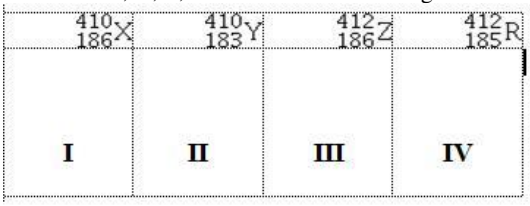
19. Bromine is the only nonmetal that is a liquid at room temperature. Consider the isotope bromine-81, $^{81}_{35}\mathrm{Br}$. Select the combination which lists the correct atomic number, number of neutrons, and mass number, respectively.
A. 35, 46, 81
B. 35, 81, 46
C. 81, 46, 35
D. 46, 81, 35
E. 35, 81, 116

Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Elements and the Periodic Table
Topic: Components of Matter

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20. Atoms X, Y, Z, and R have the following nuclear compositions:



Which of the following are isotopes of the same element?

A. I & II
B. I & IV
C. II & IV
D. III & IV
E. I & III

Bloom's Level: 5. Evaluate
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

21. Which isotope is possible?

A. $^{1}_{1}H$
B. $^{2}_{1}H$
C. $^{52}_{24}Cr$
D. $^{25}_{54}Mn$
E. All of these isotopes are possible.

Bloom's Level: 5. Evaluate
Chapter: 02 Atoms and the Periodic Table
Difficulty: Hard
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

22. The principal factor that determines whether a nucleus is stable is the
A. electron-to-neutron ratio.
B. electron-to-proton ratio.
C. neutron-to-proton ratio.
D. chemical family.
E. number of electrons.

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Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Structure of the Atom
Topic: Components of Matter

23. Which of the following in not a magic number?
A. 20
B. 10
C. 126
D. 82
E. 2

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Bloom's Level: 5. Evaluate
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Radioactivity and Nuclear Stability
Subtopic: Structure of the Atom
Topic: Components of Matter
Topic: Nuclear Chemistry

24. Which combination of neutrons and protons leads to the most number of stable nuclei?
A. odd number of neutrons and odd number of protons

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B. even number of neutrons and odd number of protons
C. odd number of neutrons and even number of protons
D. even number of neutrons and even number of protons
E. none of these options results in significantly more stable nuclei.

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Radioactivity and Nuclear Stability
Subtopic: Structure of the Atom
Topic: Components of Matter
Topic: Nuclear Chemistry

25. As the number of protons increases, stable nuclei will
A. have an equal number of neutrons and protons.
B. have an increased ratio of neutrons to protons.
C. have an odd number of neutrons.
D. have an decreased ratio of neutrons to protons.
E. become the most common type of nuclei.

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Radioactivity and Nuclear Stability
Subtopic: Structure of the Atom
Topic: Components of Matter
Topic: Nuclear Chemistry

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

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Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

27. How many neutrons are there in an atom of lead whose mass number is 208?
A. 82
B. 126
C. 208
D. 290
E. None of these choices is correct.

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

28. An atom of the isotope sulfur-31 consists of how many protons, neutrons, and electrons? (p = proton, n = neutron, e = electron)
A. 15 p, 16 n, 15 e
B. 16 p, 15 n, 16 e
C. 16 p, 31 n, 16 e
D. 32 p, 31 n, 32 e
E. 16 p, 16 n, 15 e

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
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Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

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29. Give the number of protons (p), electrons (e), and neutrons (n) in one atom of chlorine-37.
A. 37 p, 37 e, 17 n
B. 17 p, 17 e, 37 n
C. 17 p, 17 e, 20 n
D. 37 p, 17 e, 20 n
E. 17 p, 37 e, 17 n

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

30. Two isotopes of an element differ only in their
A. symbol.
B. atomic number.
C. atomic mass.
D. number of protons.
E. number of electrons.

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

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

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

32. Which of these materials are usually poor conductors of heat and electricity?
A. metals
B. metalloids
C. nonmetals
D. alkaline earth metals
E. alkali metals

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Components of Matter

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

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Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium

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Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Components of Matter

34. Which of the following elements are the least reactive?
A. alkali metals
B. noble gases
C. halogens
D. alkaline earth metals
E. metalloids

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

35. Which of the following is a nonmetal?
A. lithium, Li, Z= 3
B. bromine, Br, Z = 35
C. mercury, Hg, Z = 80
D. bismuth, Bi, Z = 83
E. sodium, Na, Z = 11

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

36. Which of the following is a metal?
A. nitrogen, N, Z = 7
B. phosphorus, P, Z = 15
C. arsenic, As, Z = 33
D. thallium, Tl, Z = 81
E. silicon, Si, Z = 14

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

37. Which of the following is a metalloid?
A. carbon, C, Z = 6
B. sulfur, S, Z = 16
C. germanium, Ge, Z = 3
D. iridium, Ir, Z = 77
E. bromine, Br, Z = 35

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Bloom's Level: 3. Apply
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Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
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38. A row of the periodic table is called a(n)
A. group.
B. period.
C. isotopic mixture.
D. family.

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E. subshell.

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Subtopic: Elements and the Periodic Table
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Topic: Chemical Periodicity
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39. Silicon, which makes up about 25% of Earth's crust by mass, is used widely in the modern electronics industry. It has three naturally occurring isotopes, ^{28}Si, ^{29}Si, and ^{30}Si. Calculate the atomic mass of silicon.

Isotope	Isotopic Mass (amu)	Abudance %
^{28}Si	27.976927	92.22
^{29}Si	28.976495	4.69
^{30}Si	29.973770	3.09

A. 29.2252 amu
B. 28.9757 amu
C. 28.7260 amu
D. 28.0855 amu
E. 27.9801 amu

Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Elements and the Periodic Table
Topic: Components of Matter

40. Lithium forms compounds which are used in dry cells, storage batteries, and in high-temperature lubricants. It has two naturally occurring isotopes, ^{6}Li (isotopic mass = 6.015123 amu) and ^{7}Li (isotopic mass = 7.016005 amu). Lithium has an atomic mass of 6.9412 amu. What is the percent abundance of lithium-6?
A. 92.53%
B. 86.65%
C. 49.47%
D. 7.47%
E. 6.015%

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Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Hard
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Elements and the Periodic Table
Topic: Components of Matter

41. In the periodic table, atoms are arranged in order of
A. increasing atomic mass.
B. increasing atomic number.
C. physical properties.
D. periodicity.
E. chemical reactivities.

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Bloom's Level: 2. Understand
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Difficulty: Easy
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Elements and the Periodic Table
Topic: Components of Matter

42. The elements in Group 7A are known by what name?
A. transition metals
B. halogens
C. alkali metals
D. alkaline earth metals
E. noble gases

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Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

43. The elements in Group 2A are known by what name?
A. transition metals
B. halogens
C. alkali metals
D. alkaline earth metals
E. noble gases

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
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44. The alkali metal elements are found in _____ of the periodic table.
A. group 1A
B. group 2A
C. group 3A
D. period 7
E. period 1

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Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

45. What terms defines a mass which is exactly equal to 1/12 the mass of one carbon-12 atom?
A. isotope number
B. mass number
C. mass-to-charge ratio
D. atomic number
E. atomic mass unit

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Topic: Components of Matter

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

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Bloom's Level: 5. Evaluate
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Components of Matter

47. Which of these elements is chemically similar to oxygen?
A. sulfur
B. calcium
C. iron
D. nickel

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E. potassium

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Bloom's Level: 5. Evaluate
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Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Components of Matter

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

Accessibility: Keyboard Navigation
Bloom's Level: 5. Evaluate
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Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Components of Matter

49. How many atoms are in 0.534 mol of nickel, Ni?
A. 1.13×10^{24} atoms
B. 1.48×10^{25} atoms
C. 2.44×10^{22} atoms
D. 3.22×10^{23} atoms
E. 6.98×10^{21} atoms

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Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

50. How many atoms are in 7.12 mol of gold, Au?
A. 1.18×10^{-23} atoms
B. 4.29×10^{24} atoms
C. 8.46×10^{22} atoms
D. 4.70×10^{24} atoms
E. 3.34×10^{26} atoms

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

51. How many moles are in 8.73×10^{25} atoms of boron, B?
A. 145 moles
B. 3.84×10^{27} moles
C. 1.45 moles
D. 5.04×10^{-25} moles
E. 6.90×10^{-3} moles

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Mole Conversions
Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

52. How many moles are present in 17.4 g of lead?
A. 0.0994 moles
B. 1.05×10^{25} moles
C. 0.0840 moles

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D. 10.06 moles
E. 11.9 moles

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Difficulty: Medium
Subtopic: Molar Mass
Subtopic: Mole Conversions
Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

53. How many grams are present in 0.885 moles of manganese?
A. 62.1 g
B. 48.6 g
C. 21.5 g
D. 27.5 g
E. 0.016 g

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Molar Mass
Subtopic: Mole Conversions
Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

54. Determine the mass of hydrogen (in grams) that contains 5.08×10^{15} hydrogen atoms.
A. 5.12×10^{15} g
B. 3.06×10^{39} g
C. 3.06×10^{-9} g
D. 8.50×10^{-9} g
E. 8.5×10^{15} g

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Molar Mass
Subtopic: Mole Conversions
Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

55. What element is represented by X in the atomic symbol notation $^{195}_{78}X$?
A. iridium
B. platinum
C. palladium
D. selenium
E. magnesium

Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Elements and the Periodic Table
Topic: Components of Matter

56. A rock contains an element with a molar mass of 40.08 g/mol. If 9.28×10^{24} atoms of this element were found in the rock, how many grams of the unknown element are present in the rock?
A. 618 g
B. 1.49×10^{28} g
C. 2.24×10^{50} g
D. 0.38 g
E. 3.80 g

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Molar Mass
Subtopic: Mole Conversions
Subtopic: The Mole (Definition and Avogadro's Number)

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Topic: Stoichiometry and Chemical Reactions

57. Five vials each contain 12 grams of a solid metal sample. The samples include calcium, platinum, barium, gold, and silver. Which vial has the most metal atoms?
A. calcium
B. barium
C. gold
D. silver
E. platinum

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
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Subtopic: Molar Mass
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Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

58. Five vials each contain 12 grams of a solid metal sample. The samples include calcium, platinum, barium, gold, and silver. Which vial has the fewest moles of metal atoms?
A. calcium
B. barium
C. gold
D. silver
E. platinum

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Molar Mass
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Subtopic: The Mole (Definition and Avogadro's Number)
Topic: Stoichiometry and Chemical Reactions

59. Determine the number of electrons and identify the correct symbol for an atom with 17 protons and 18 neutrons.
A. 17 electrons, $^{35}_{17}\mathrm{Cl}$
B. 18 electrons, $^{36}_{18}\mathrm{Ar}$
C. 17 electrons, $^{18}_{17}\mathrm{Cl}$
D. 17 electrons, $^{17}_{35}\mathrm{Cl}$
E. 18 electrons, $^{18}_{36}\mathrm{Ar}$

Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

60. Determine the number of protons, electrons, and neutrons for the isotope gold-118. The symbol for gold is Au.
A. 118 protons, 118 electrons, 79 neutrons
B. 79 protons, 79 electrons, 118 neutrons
C. 79 protons, 79 electrons, 39 neutrons
D. 118 protons, 118 electrons, 39 neutrons
E. 79 protons, 39 electrons, 118 neutrons

Accessibility: Keyboard Navigation
Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

61. Determine the number of protons and identify the correct symbol for an atom with 20 neutrons and 20 electrons.
A. 20 protons, $^{20}_{20}\mathrm{Ca}$
B. 20 protons, $^{40}_{20}\mathrm{Ca}$
C. 20 protons, $^{20}_{40}\mathrm{Ca}$

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D. 40 protons, $^{40}_{20}Ca$

E. 40 protons, $^{20}_{40}Ca$

Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

62. The mass of a neutron is equal to the mass of a proton plus the mass of an electron.
FALSE

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Structure of the Atom
Topic: Components of Matter

63. All neutral atoms of tin have 50 protons and 50 electrons.
TRUE

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Structure of the Atom
Topic: Components of Matter

64. Copper (Cu) is a transition metal.
TRUE

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

65. Lead (Pb) is a main group element.
TRUE

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

66. Almost all the mass of an atom is concentrated in the nucleus.
TRUE

Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Theories
Subtopic: Structure of the Atom
Topic: Components of Matter

67. When a beam of alpha particles passes between two electrically charged plates, the beam is deflected toward the positive plate.
FALSE

Accessibility: Keyboard Navigation
Bloom's Level: 3. Apply
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Theories
Topic: Components of Matter

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68. J. J. Thomson suggested the term "radioactivity" to describe the spontaneous emission of particles and/or radiation.
FALSE

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Atomic Theories
Topic: Components of Matter

69. The elements in Group 8A are called the _____.
A. alkali metals
B. alkaline earth metals
C. transition metals
D. halogens
E. noble gases

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

70. The elements in Group 2A are called the _____.
A. alkali metals
B. alkaline earth metals
C. transition metals
D. halogens
E. noble gases

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

71. The elements in Group 7A are called the _____.
A. alkali metals
B. alkaline earth metals
C. transition metals
D. halogens
E. noble gases

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

72. The elements in Group 1A are called the _____.
A. alkali metals
B. alkaline earth metals
C. transition metals
D. halogens
E. noble gases

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

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73. Which group is given the name chalcogens?
A. 1A
B. 2A
C. 2B
D. 6A
E. 7A

Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Chapter: 02 Atoms and the Periodic Table
Difficulty: Easy
Subtopic: Elements and the Periodic Table
Subtopic: Periodic Classification of the Elements
Topic: Chemical Periodicity
Topic: Components of Matter

74. The table below describes four atoms.

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

Which atoms represent the same element?
A. A and B; C and D
B. A and C; B and D
C. A and D; B and C
D. None of the these choices is correct.

Bloom's Level: 4. Analyze
Chapter: 02 Atoms and the Periodic Table
Difficulty: Medium
Subtopic: Atomic Number, Mass Number, Atomic Symbol, and Isotopes
Subtopic: Structure of the Atom
Topic: Components of Matter

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