

Practice Test: ch 5 and 6**Matching**

- | | |
|----------------------|-----------------|
| a. electronegativity | f. periodic law |
| b. ionization energy | g. cation |
| c. atomic radius | h. period |
| d. metal | i. group |
| e. transition metal | j. electrons |

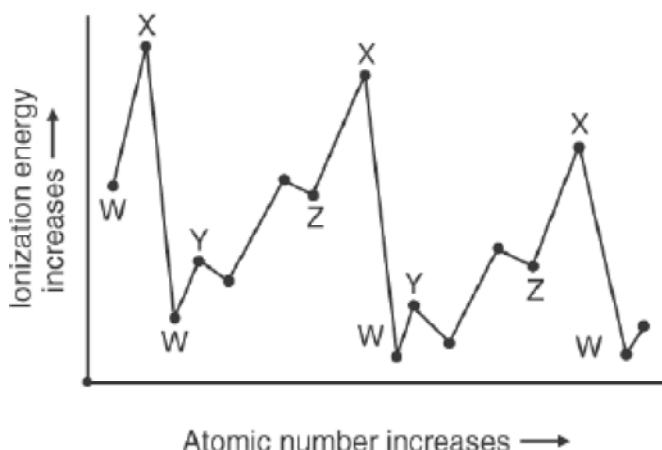
- ___ 1. subatomic particles that are transferred to form positive and negative ions
- ___ 2. type of element that is a good conductor of heat and electric current
- ___ 3. horizontal row in the periodic table
- ___ 4. ability of an atom to attract electrons when the atom is in a compound
- ___ 5. type of ion formed by Group 2A elements
- ___ 6. one-half the distance between the nuclei of two atoms when the atoms are joined
- ___ 7. vertical column in the periodic table
- ___ 8. A repetition of properties occurs when elements are arranged in order of increasing atomic number.
- ___ 9. energy required to remove an electron from an atom
- ___ 10. type of element characterized by the presence of electrons in the *d* orbital

Multiple Choice

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

- ___ 11. Which of the following factors contributes to the decrease in ionization energy within a group in the periodic table as the atomic number increases?
- fewer electrons in the highest occupied energy level
 - increase in number of protons
 - increase in size of the nucleus
 - increase in atomic size
- ___ 12. Of the following elements, which one has the smallest first ionization energy?
- | | |
|------------|-------------|
| a. silicon | c. aluminum |
| b. boron | d. carbon |
- ___ 13. Which statement is true about electronegativity?
- Electronegativity generally increases as you move from top to bottom within a group.
 - Electronegativity is the ability of an anion to attract another anion.
 - Electronegativity generally increases from left to right across a period.
 - Electronegativity generally is higher for metals than for nonmetals.
- ___ 14. Barium is a larger atom than Calcium. Which of the following is the *BEST* explanation why this occurs?
- | | |
|---------------------------------------------------|----------------------------------------------------------|
| a. Barium only has two valence electrons | c. Barium has more electrons than calcium |
| b. Barium has two more energy levels than calcium | d. Barium more electrons and protons and more attraction |

- _____ 27. What is the element with the highest electronegativity value?
- fluorine
 - calcium
 - cesium
 - helium
- _____ 28. The modern periodic table is arranged in order of increasing atomic _____.
- charge
 - number
 - mass
 - radius
- _____ 29. If three electrons are available to fill three empty $2p$ atomic orbitals, how will the electrons be distributed in the three orbitals?
- Three electrons cannot fill three empty $2p$ atomic orbitals.
 - two electrons in one orbital, one in another, none in the third
 - one electron in each orbital
 - three in one orbital, none in the other two
- _____ 30. Which of the following has the smallest atomic radius?
- bromine
 - selenium
 - sulfur
 - oxygen
- _____ 31. How does the energy of an electron change when the electron moves closer to the nucleus?
- It stays the same.
 - It decreases.
 - It doubles.
 - It increases.
- _____ 32. Which electron configuration of the $4f$ energy sublevel is the most stable?
- $4f^{13}$
 - $4f^7$
 - $4f$
 - $4f^{14}$
- _____ 33. Who arranged the elements according to atomic mass and used the arrangement to predict the properties of missing elements?
- John Dalton
 - Dmitri Mendeleev
 - Henry Moseley
 - Antoine Lavoisier
- _____ 34. What element in the second period has the largest atomic radius?
- lithium
 - neon
 - carbon
 - potassium
- _____ 35. Choose the correct noble gas electron configuration for Plutonium
- $[\text{Xe}] 7s^2 5f^5 6d^1$
 - $[\text{Xe}] 7s^2 5f^6$
 - $[\text{Rn}] 7s^2 5f^5 6d^1$
 - $[\text{Rn}] 7s^2 5f^6$
- _____ 36. What is the electron configuration of potassium?
- $1s^2 2s^2 3s^2 3p^6 3d^1$
 - $1s^2 2s^2 2p^2 3s^2 3p^2 4s^1$
 - $1s^2 2s^2 2p^{10} 3s^2 3p^3$
 - $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
- _____ 37. What is the maximum number of electrons in the second principal energy level?
- 2
 - 8
 - 32
 - 18
- _____ 38. Which element has the outer-most electron configuration of $3p^4$?
- Se
 - N
 - S
 - Si
- _____ 39. Arrange the following elements: P^{3-} , S^{2-} , K^+ , Ca^{2+} , Sc^{3+} , in order of increasing ionic size.
- K^+ , Ca^{2+} , Sc^{3+} , S^{2-} , P^{3-}
 - P^{3-} , S^{2-} , K^+ , Ca^{2+} , Sc^{3+}
 - Sc^{3+} , Ca^{2+} , K^+ , P^{3-} , S^{2-}
 - Sc^{3+} , Ca^{2+} , K^+ , S^{2-} , P^{3-}
- _____ 40. Each period in the periodic table corresponds to _____.
- a suborbital
 - a principal energy level
 - an energy sublevel
 - an orbital



53. The chart above shows the relationship between the first ionization energy and the increase in atomic number. The letter on the chart for the alkali family of elements is
- | | |
|------|------|
| a. Z | c. X |
| b. Y | d. W |
54. List the valence electrons for lead.
- | | |
|--------------------------------|------------------------|
| a. $6s^2 4f^{14} 5d^{10} 6p^2$ | c. $7s^2 7p^2$ |
| b. $6s^2 6p^2$ | d. $5s^2 4d^{10} 5p^2$ |
55. Which ion, Aluminum or Sodium is smaller?
- | | |
|-------------|---------------------------|
| a. Sodium | c. both are the same size |
| b. Aluminum | d. not enough information |
56. $P_4O_{10} + H_2O \rightarrow H_3PO_4$
How many molecules of water are needed to produce 66.8 g of phosphoric acid?
- | | |
|-----------------------|---------------------------|
| a. 2.74×10^1 | c. 6.16×10^{23} |
| b. 6.16×10^1 | d. 61.6×10^{-23} |
57. Which compound represents a molecular compound?
- | | |
|--------------|-------------|
| a. S_2Br_6 | c. HBr |
| b. KF | d. $NaNO_3$ |
58. $3CuCl_2 + 2Al \rightarrow 2AlCl_3 + 3Cu$
Choose the correct type of reaction.
- | | |
|-----------------------|------------------|
| a. double replacement | c. combination |
| b. single replacement | d. decomposition |
59. $\underline{\quad} Al + \underline{\quad} CuSO_4 \rightarrow \underline{\quad} Al_2(SO_4)_3 + \underline{\quad} Cu$
The reaction above can be properly balanced with which set of coefficients listed below?
- | | |
|---------------|---------------|
| a. 2, 1, 3, 6 | d. 2, 1, 1, 3 |
| b. 4, 3, 2, 6 | e. 2, 3, 1, 3 |
| c. 4, 3, 1, 3 | |

Practice Test: ch 5 and 6 Answer Section

MATCHING

- | | |
|------------|--------|
| 1. ANS: J | PTS: 1 |
| 2. ANS: D | PTS: 1 |
| 3. ANS: H | PTS: 1 |
| 4. ANS: A | PTS: 1 |
| 5. ANS: G | PTS: 1 |
| 6. ANS: C | PTS: 1 |
| 7. ANS: I | PTS: 1 |
| 8. ANS: F | PTS: 1 |
| 9. ANS: B | PTS: 1 |
| 10. ANS: E | PTS: 1 |

MULTIPLE CHOICE

- | | | | |
|--------------------|-------------|---------|-------------------------------|
| 11. ANS: D | PTS: 1 | DIF: L2 | REF: p. 174 |
| OBJ: 6.3.1 6.3.3 | STA: Ch.1.c | | |
| 12. ANS: C | PTS: 1 | DIF: L3 | REF: p. 173 |
| OBJ: 6.3.3 | STA: Ch.1.c | | |
| 13. ANS: C | PTS: 1 | DIF: L2 | REF: p. 177 |
| OBJ: 6.3.3 | STA: Ch.1.c | | |
| 14. ANS: B | PTS: 1 | | |
| 15. ANS: A | PTS: 1 | DIF: L3 | REF: p. 133 p. 134 |
| OBJ: 5.2.1 | STA: Ch.1.g | | |
| 16. ANS: A | PTS: 1 | DIF: L2 | REF: p. 171 |
| OBJ: 6.3.1 | STA: Ch.1.a | | |
| 17. ANS: B | PTS: 1 | DIF: L3 | REF: p. 162 p. 163 p. 172 |
| OBJ: 6.3.2 | STA: Ch.1.c | | |
| 18. ANS: A | PTS: 1 | DIF: L2 | REF: p. 158 |
| OBJ: 6.1.3 | STA: Ch.1.b | | |
| 19. ANS: A | PTS: 1 | | |
| 20. ANS: A | PTS: 1 | DIF: L2 | REF: p. 131 p. 132 |
| OBJ: 5.1.3 | STA: Ch.1.i | | |
| 21. ANS: C | PTS: 1 | | |
| 22. ANS: A | PTS: 1 | DIF: L3 | REF: p. 171 p. 175 |
| OBJ: 6.3.1 | STA: Ch.1.a | | |
| 23. ANS: A | PTS: 1 | DIF: L2 | REF: p. 131 |
| OBJ: 5.1.3 | STA: Ch.1.i | | |
| 24. ANS: A | PTS: 1 | | |
| 25. ANS: D | PTS: 1 | DIF: L2 | REF: p. 131 |
| OBJ: 5.1.3 | STA: Ch.1.i | | |

26. ANS: D
Standard 1c

PTS: 1
27. ANS: A PTS: 1 DIF: L1 REF: p. 177
OBJ: 6.3.3 STA: Ch.1.c
28. ANS: B PTS: 1 DIF: L2 REF: p. 157
OBJ: 6.1.1 STA: Ch.1.a
29. ANS: C PTS: 1 DIF: L3 REF: p. 134
OBJ: 5.2.1 STA: Ch.1.g | Ch.1.i
30. ANS: D PTS: 1
31. ANS: B PTS: 1 DIF: L2 REF: p. 128
OBJ: 5.1.3 STA: Ch.1.i
32. ANS: D PTS: 1 DIF: L2 REF: p. 136
OBJ: 5.2.2 STA: Ch.1.g
33. ANS: B PTS: 1 DIF: L1 REF: p. 156
OBJ: 6.1.2 STA: Ch.1
34. ANS: A PTS: 1 DIF: L2 REF: p. 171
OBJ: 6.3.1 STA: Ch.1.a
35. ANS: C PTS: 1
36. ANS: D PTS: 1 DIF: L2 REF: p. 133 | p. 134 | p. 135
OBJ: 5.2.1 STA: Ch.1.g
37. ANS: B PTS: 1 DIF: L3 REF: p. 132
OBJ: 5.1.3 STA: Ch.1.i
38. ANS: C PTS: 1
39. ANS: D PTS: 1
40. ANS: B PTS: 1 DIF: L2 REF: p. 157
OBJ: 6.1.1 STA: Ch.1.a
41. ANS: C PTS: 1 DIF: L1 REF: p. 177
OBJ: 6.3.3 STA: Ch.1.c
42. ANS: D PTS: 1 DIF: L3 REF: p. 173
OBJ: 6.3.3 STA: Ch.1.c
43. ANS: A PTS: 1 DIF: L2 REF: p. 131
OBJ: 5.2.1 STA: Ch.1.i
44. ANS: D PTS: 1
45. ANS: B PTS: 1
46. ANS: C PTS: 1
47. ANS: D PTS: 1
48. ANS: C PTS: 1
49. ANS: D PTS: 1
50. ANS: C PTS: 1
51. ANS: B PTS: 1 DIF: L3 REF: p. 162 | p. 163 | p. 172
OBJ: 6.3.2 STA: Ch.1.c
52. ANS: D PTS: 1 DIF: L3 REF: p. 162 | p. 163 | p. 172
OBJ: 6.3.2 STA: Ch.1.c

53. ANS: D
1c

PTS: 1

STA: 1c

54. ANS: B

PTS: 1

55. ANS: B

PTS: 1

56. ANS: C

PTS: 1

57. ANS: A
ST 2A, 2B

PTS: 1

58. ANS: B

PTS: 1

STA: 3e

59. ANS: E

PTS: 1