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TABLE OF ELECTRONEGATIVE VALUES

H 2.2						He	
Li 0.98	Be 1.6	B 2.0	C 2.6	N 3.0	O 3.4	F 4.0	Ne
Na 0.93	Mg 1.2	Al 1.6	Si 1.9	P 2.2	S 2.6	Cl 3.2	Ar
K 0.88	Ca 1.0	Ga 1.8	Ge 2.0	As 2.2	Se 2.6	Br 2.8	Kr
Rb 0.82	Sr 0.95	In 1.8	Sn 2.0	Sb 1.9	Te 2.1	I 2.7	Xe
Cs 0.79	Ba 0.89	Tl 1.8	Pb 1.9	Bi 1.9	Po 2.0	At 2.2	Rn

1. What is the equivalent of 150°C, in kelvins?
  - A) 423
  - B) 66
  - C) 328
  - D) -123
  
2. Which is the electron configuration for a noble gas?
  - A)  $1s^2 2s^2 2p^5$
  - B)  $1s^2 2s^2 2p^6 3s^2$
  - C)  $1s^2 2s^2 2p^6$
  - D)  $1s^2 2s^2 2p^6 3s^1$
  
3. The atomic number of an atom is the number of:
  - A) protons plus neutrons in the atom
  - B) neutrons in the atom
  - C) amu units in the atom
  - D) protons in the atom
  
4. Compared with metals, nonmetals:
  - A) have higher ionization energies and higher electronegativities
  - B) have higher ionization energies and lower electronegativities
  - C) have lower ionization energies and higher electronegativities
  - D) have lower ionization energies and lower electronegativities
  
5. Molecules of sodium chloride:
  - A) are nonelectrolytes
  - B) display polar covalent bonding
  - C) have 180° bond angles
  - D) do not exist
  
6. Which of these metals loses electrons most readily?
  - A) Calcium
  - B) Magnesium
  - C) Cesium
  - D) Sodium

7. Which statement regarding the properties of transition metals is correct?
- A) Transition metals generally form colorless salts.
  - B) Transition metals typically form cations with a 1+ charge.
  - C) Transition metals are found in biological systems where electrons are transferred.
  - D) Aluminum is a transition metal.
8. Which chemical symbol represents a nonmetal?
- A) P
  - B) Li
  - C) Ca
  - D) Ni
9. How many subshells does a calcium atom (atomic number 20) have?
- A) Three
  - B) Four
  - C) Five
  - D) Six
10. Which formula represents an acetate ion?
- A)  $\text{OH}^-$
  - B)  $\text{CN}^-$
  - C)  $\text{HCO}_3^-$
  - D)  $\text{C}_2\text{H}_3\text{O}_2^-$
11. Isotopes of an element differ in their numbers of \_\_\_\_\_.
- A) electrons
  - B) protons
  - C) neutrons
  - D) nuclei
12. The molar mass of  $(\text{NH}_4)_2\text{CO}_3$  is:
- A) 96 g/mol
  - B) 82 g/mol
  - C) 52 g/mol
  - D) 33 g/mol

13. Which chemical symbol represents a metalloid?
- A) Zn
  - B) Li
  - C) Si
  - D) Se
14. Which expression gives the correct scientific notation for the measurement 108.2 cm?
- A)  $10.82 \times 10^{-1}$  cm
  - B)  $1.082 \times 10^2$  cm
  - C)  $0.1082 \times 10^3$  cm
  - D)  $1.082 \times 10^{-2}$  cm
15. The total number of valence electrons available in methane, CH<sub>4</sub>, is:
- A) three
  - B) four
  - C) six
  - D) eight
16. What is the configuration for the last subshell of the element sodium (atomic number 11)?
- A)  $2p^1$
  - B)  $3p^1$
  - C)  $3s^1$
  - D)  $2p^6$
17. How many grams are contained in 0.46 mol of H<sub>2</sub>SO<sub>4</sub>?
- A) 45
  - B) 51
  - C) 90
  - D) 61
18. Which is the formula of lead(II) phosphate?
- A) PbPO<sub>4</sub>
  - B) Pb<sub>2</sub>(PO<sub>4</sub>)<sub>3</sub>
  - C) Pb<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>
  - D) Pb<sub>4</sub>PO<sub>4</sub>

19. When a metal atom reacts with a nonmetal atom, the nonmetal atom will:
- A) gain electrons and form a positive ion
  - B) gain electrons and form a negative ion
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20. Which statement expresses a chemical property?
- A) Copper wires conduct electricity.
  - B) A match head ignites when struck.
  - C) Steam condenses on cold surfaces.
  - D) One milliliter of water weighs approximately 1 g.
21. How many subshells does a sulfur atom (atomic number 16) have?
- A) Three
  - B) Four
  - C) Five
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22. Which statement describes H<sub>2</sub>O?
- A) H<sub>2</sub>O is an ionic compound.
  - B) H<sub>2</sub>O is a polar covalent molecule.
  - C) H<sub>2</sub>O is a nonpolar covalent molecule.
  - D) H<sub>2</sub>O has a low dipole moment.
23. How many significant figures does the number 23.000 contain?
- A) Two
  - B) Three
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24. Which pair of atoms bond ionically?
- A) Li and Cl
  - B) H and Cl
  - C) Cl and Cl
  - D) As and Cl

25. How many moles of  $\text{H}_2\text{SO}_4$  are there in 43 g of  $\text{H}_2\text{SO}_4$ ?
- A) 0.56
  - B) 1.1
  - C) 2.3
  - D) 0.44

## Answer Key V 1.00

1. A
2. C
3. D
4. A
5. D
6. C
7. C
8. A
9. D
10. D
11. C
12. A
13. C
14. B
15. D
16. C
17. A
18. C
19. B
20. B
21. C
22. B
23. D
24. A
25. D

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## Answer Key v1.10

1. D
2. D
3. B
4. B
5. C
6. A
7. C
8. A
9. A
10. C
11. D
12. C
13. A
14. C
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17. A
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23. A
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- D)  $-123$

## Answer Key v1.20

1. C
2. A
3. B
4. D
5. D
6. D
7. B
8. D
9. C
10. D
11. C
12. A
13. C
14. B
15. C
16. B
17. A
18. C
19. C
20. D
21. C
22. D
23. A
24. A
25. A