

## Chem 7 review for comp

- \_\_\_ 1. A substance composed all of one type of element is a?
- a. compound
  - b. solution
  - c. mixture
  - d. element
- \_\_\_ 2. Which one of the following materials could be separated into components by simple filtration?
- a. compound
  - b. solution
  - c. mixture
  - d. element
- \_\_\_ 3. Which of the following statements is not a main point of Dalton's atomic theory?
- a. All matter is made up of atoms.
  - b. Atoms are made up of smaller particles.
  - c. Atoms are indestructible.
  - d. All atoms of one element are exactly alike, but they are different from atoms of other elements.
- \_\_\_ 4. The lowest energy electron configuration is the
- a. activated state
  - b. neutral state
  - c. ground state
  - d. plasma state
- \_\_\_ 5. The force that holds the electron near the proton is called
- a. electrostatic force
  - b. magnetic force
  - c. gravity force
  - d. potential energy

- \_\_\_ 6. The number of electrons in an s orbital are
- a. 10
  - b. 2
  - c. 6
  - d. 4
- \_\_\_ 7. A p-orbital can hold a maximum of
- a. 12 electrons
  - b. 2 electrons
  - c. 8 electrons
  - d. 6 electrons
- \_\_\_ 8. Effective nuclear charge is?
- a. magnitude of nuclear charge to attract a neutron
  - b. magnitude of nuclear charge to attract an outer electron
  - c. magnitude of nuclear charge to attract a proton
  - d. magnitude of electron charge to attract a neutron
- \_\_\_ 9. Rutherford's gold foil experiment confirmed
- a. the cookie dough model
  - b. the nuclear model
  - c. the Heisenberg quantum model
  - d. the Dalton atomic model
- \_\_\_ 10. When moving across the periodic table left to right
- a. the radius of neutral atoms increases
  - b. the radius goes up for the first three atoms and then goes down
  - c. the radius of neutral atoms stays the same
  - d. the radius of neutral atoms decreases

- \_\_\_11. When moving down a group on the periodic table
- a. the radius of neutral atoms increases
  - b. the radius goes up for the first three atoms and then goes down
  - c. the radius of neutral atoms stays the same
  - d. the radius of neutral atoms decreases

- \_\_\_12. Of the following compounds, which is the most ionic?

- a.  $\text{SnCl}_4$
- b.  $\text{BrCl}$
- c.  $\text{PCl}_3$
- d.  $\text{Cl}_2\text{O}$

- \_\_\_13. Atoms on the left side of the periodic table have

- a. less affinity for electrons
- b. neutral affinity for electrons
- c. greater affinity for electrons
- d. no affinity for electrons
- e. no electrons

- \_\_\_14. When oxygen gains two electrons it's formal charge is

- a. -1
- b. -2
- c. -3
- d. -4

- \_\_\_15. Compare carbon and nitrogen:

- a. carbon is larger with lower ionization energy
- b. carbon is smaller with lower ionization energy
- c. carbon is larger with higher ionization energy
- d. carbon is smaller with higher ionization energy

- \_\_\_16. How many chlorine molecules are in 0.15 mole of chlorine gas ( $\text{Cl}_2$ )?
- a.  $9 \times 10^{20}$  molecules  
b.  $4 \times 10^{22}$  molecules  
c.  $6 \times 10^{23}$  molecules  
d.  $9 \times 10^{22}$  molecules
- \_\_\_17. How many atoms are there in 10 g of nitrogen (N)?
- a.  $4 \times 10^{21}$  atoms  
b. 4.3 atoms  
c.  $4.8 \times 10^{24}$  atoms  
d.  $4.3 \times 10^{23}$  atoms
- \_\_\_18. What is the molecular mass of sodium carbonate ( $\text{Na}_2\text{CO}_3$ )?
- a. 206 g/mole  
b. 96 g/mole  
c. 106 g/mole  
d. 306 g/mole
- \_\_\_19. Group 7A ions carry a charge of
- a. -1  
b. -2  
c. +1  
d. +2
- \_\_\_20. Group 1A ions carry a charge of
- a. +2  
b. +1  
c. -1  
d. -2
- \_\_\_21. Group 6A ions have a charge of
- a. +2  
b. +1  
c. -3  
d. -2
- \_\_\_22. The atom that contains exactly two unpaired electrons in its orbital diagram.
- a. S  
b. Ca  
c. Ge  
d. Sb  
e. Br

- \_\_\_23. Of the following options, which selection is not found in an ionic compound?
- a. Metal paired with nonmetal
  - b. Oppositely charged ions
  - c. Electrons not shared
  - d. Covalent bonds
- \_\_\_24. Of the following options, which selection is not found in a molecular compound?
- a. nonmetal with nonmetal
  - b. Ionic bonds
  - c. Electrons shared
  - d. Does not contain oppositely charged ions
- \_\_\_25. How many electrons does  $P^{-3}$  contain?
- a. 15
  - b. 18
  - c. 16
  - d. 17
- \_\_\_26. A salt is a compound that contains
- a. a cation and an anion
  - b. only a cation
  - c. only an anion
  - d. only two cations
- \_\_\_27. If Thomson's cookie dough model had been correct, then the expected result from Rutherford's gold foil experiment would have been that the alpha particles
- a. would bounce directly back toward the source when they impacted the gold atoms
  - b. would have blown big holes through the gold atoms-no deflection
  - c. would have penetrated the gold atoms and then deflected at  $90^\circ$
  - d. nothing. When matter and antimatter meet they sum to zero

- \_\_\_28. The d orbital holds a total of
- a. 8 electrons
  - b. 6 electrons
  - c. 2 electrons
  - d. 10 electrons
- \_\_\_29. If an atom with an atomic number of 6, has a mass number of 14, then how many neutrons does it have?
- a. 10
  - b. 7
  - c. 8
  - d. 6
- \_\_\_30. The correct electron configuration for Cl is
- a.  $1s^1 2s^2 2p^2 3s^2 3p^4$
  - b.  $1s^2 2s^2 2p^6 3s^2 3p^5$
  - c.  $1s^2 2s^2 2p^1 3s^2 3p^3$
  - d.  $1s^2 2s^1 2p^2 3s^2 3p^1$
- \_\_\_31. The correct electron configuration of Ar is
- a.  $1s^2 2s^2 2p^6 3s^2 3p^6$
  - b.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
  - c.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$
  - d.  $1s^1 2s^2 2p^6 3s^1 3p^4$
- \_\_\_32. A chemist has 58.69 grams of Ni. In terms of atoms, an equal mass of carbon would be
- a. 72.01 grams
  - b. 36.01 grams
  - c. 58.69 grams
  - d. 12.01 grams
- \_\_\_33. Quantum number  $m_l$  defines the
- a. Shape of orbital
  - b. Spin of electron
  - c. Orientation of orbital
  - d. Energy of electron

- \_\_\_34. The Heisenberg Uncertainty Principle says that
- a. we can know both position and speed of the electron
  - b. we can predict the energy of the alpha electron
  - c. the electron does not have speed
  - d. we cannot know both position and speed of the electron at the same time
- \_\_\_35. An atom of Ar contains 18 electrons. How many energy levels are needed to contain these electrons?
- a. 1
  - b. 2
  - c. 3
  - d. 4
- \_\_\_36. The atomic number of fluorine is 9. How many valence electrons does an atom of chlorine have?
- a. 2
  - b. 7
  - c. 9
  - d. 17
- \_\_\_37. The correct electron configuration for nitrogen is
- a.  $1s^12s^22p^23s^1$
  - b.  $1s^22s^22p^3$
  - c.  $1s^22s^22p^1$
  - d.  $1s^22s^12p^2$
- \_\_\_38. Quantum number **l** refers to
- a. energy of the orbital
  - b. shape of the orbital
  - c. spin of the electron
  - d. orientation of the orbital
- \_\_\_39. The atomic radius of Pd is \_\_\_\_\_ Sn.
- a. bigger than
  - b. same as
  - c. smaller than
  - d. sometimes smaller

\_\_\_40. It is \_\_\_\_\_ to remove an electron from F as compared to Be.

- a. harder
- b. easier
- c. not possible
- d. the same energy

\_\_\_41. It is \_\_\_\_\_ to remove an electron from Mg as compared to Ba.

- a. harder
- b. easier
- c. not possible
- d. the same energy

\_\_\_42. If the atomic number of a neutral element is 23; there are

- a. 23 protons and 24 electrons
- b. 23 protons and 22 electrons
- c. 23 protons and 23 electrons
- d. 22 protons and 23 electrons

\_\_\_43. The ion  $K^+$  contains

- a. 19 protons and 20 electrons
- b. 19 protons and 19 electrons
- c. 19 protons and 18 electrons
- d. impossible to determine