

Date: \_\_\_\_\_

- a. N                                  c. Al  
b. C                                  d. K

7. Which of the following is most likely to lose electrons when forming an ion?
- a. F
  - b. Sr
  - c. P
  - d. S
8. Which of the following pairs of elements form ions with a +3 charge?
- a. Al and Ga
  - b. Li and Na
  - c. N and O
  - d. F and Cl
9. Group 5A ions have a charge of
- a. +3
  - b. +2
  - c. -3
  - d. -2
10. Element X reacts with sodium to form an ionic compound with the formula  $\text{Na}_2\text{X}$ , Element X is a member of a group \_\_\_\_\_.
- a. 1 / 1A
  - b. 2 / 2A
  - c. 15 / 5A
  - d. 16 / 6A
11. Which compound is molecular (covalent)?
- a.  $\text{Na}_2\text{O}$
  - b.  $\text{CuSO}_4$
  - c.  $\text{CsI}$
  - d.  $\text{CS}_2$
12. Ionization energy refers to the energy required to
- a. Gain an electron
  - b. Bounce an electron into a lower orbital
  - c. Remove an electron forming an ion
  - d. Accept an electron neutralizing the charge
13. Predict the formula of the compound formed between Mg and O
- a.  $\text{Mg}_2\text{O}$
  - b.  $\text{MgO}$
  - c.  $\text{MgO}_2$
  - d.  $\text{Mg}_2\text{O}_2$
14. Of the following options, which selection is found in a molecular compound?
- a. nonmetal bonded to metal
  - b. ionic bonds between atoms
  - c. electrons are shared
  - d. contains oppositely charged ions
15. How many electrons does  $\text{P}^{-3}$  contain?
- a. 15
  - b. 18
  - c. 16
  - d. 17
16. How many electrons does  $\text{Fe}^{+3}$  contain?
- a. 23
  - b. 24
  - c. 25
  - d. 26

17. If Ca(s) metal is combined with oxygen, how many electrons will calcium transfer to oxygen?

- a. one
- b. three
- c. two
- d. four

18. The correct electron configuration for Cl is

- a.  $1s^1 2s^2 2p^6 3s^2 3p^4$
- b.  $1s^2 2s^2 2p^6 3s^2 3p^5$
- c.  $1s^2 2s^2 2p^6 3s^2 3p^3$
- d.  $1s^2 2s^2 2p^6 3s^2 3p^1$

19. An electron in  $n = 1$ , is in

- a. an **s** or **d** orbital
- b. An **s** orbital
- c. an **p** or **d** orbital
- d. an **s** or **p** orbital

20. Which electron configuration represents a transition metal?

- a.  $1s^2 2s^2 2p^6 3s^2$
- b.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
- c.  $1s^2 2s^2 2p^6 3s^2 3p^6$
- d.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$

21. The compound BrF<sub>3</sub> is named as

- a. Tribromine fluoride
- b. Triboron trifluoride
- c. Boron trifluoride
- d. Bromine trifluoride

22. Which electron configuration represents a noble gas?

- a.  $1s^2 2s^2 2p^6 3s^2$
- b.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
- c.  $1s^2 2s^2 2p^6 3s^2 3p^6$
- d.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$

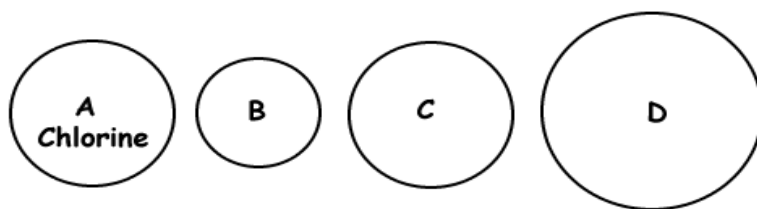
23. Which of the following metal is classified as alkali metal?

- a. Magnesium
- b. Potassium
- c. Argon
- d. Phosphorus

24. Which of the following ions has the same number of electrons as Br<sup>-</sup>?

- a. Ca<sup>2+</sup>
- b. Sr<sup>2+</sup>
- c. K<sup>+</sup>
- d. I<sup>-</sup>

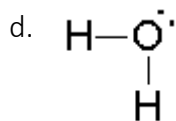
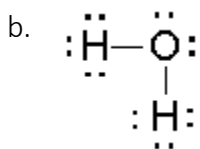
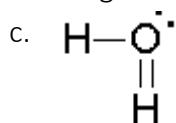
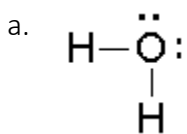
25. Given the representation of a chlorine atom, which circle might represent an atom of bromine?



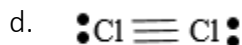
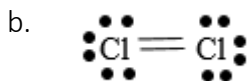
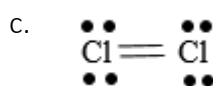
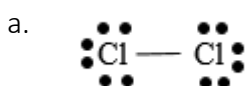
- a. Circle A
- b. Circle B
- c. Circle C
- d. Circle D

26. Of the following elements, which one would have the smallest radius?
- Fluorine (F)
  - Oxygen (O)
  - Nitrogen (N)
  - Carbon (C)
27. The least electronegative elements are the
- Halogens
  - Noble gases
  - Metalloids
  - Alkali metals
28. A magnesium atom that loses two electrons becomes a
- Positive ion with smaller radius
  - Negative ion with smaller radius
  - Positive ion with larger radius
  - Negative ion with larger radius
29. Of the elements below, which element has the largest ionization energy?
- Li
  - Na
  - K
  - Rb
30. An element that has valence electrons configuration  $6s^26p^6$  belongs to
- Period 6; group 6A
  - Period 6; group 8A
  - Period 7; group 6A
  - Period 7; group 8A
31. What is the formula of Iron (III) sulfate?
- $\text{FeSO}_4$
  - $\text{Fe}(\text{SO}_4)_3$
  - $\text{Fe}_2(\text{SO}_4)_3$
  - $\text{FeSO}_3$
32. What is the formula of Magnesium oxide?
- MgO
  - $\text{Mg}_2\text{O}_2$
  - $\text{MgO}_2$
  - MnO
33. What is the name of  $\text{ScCl}_3$  ?
- Scandium chloride
  - Scandium (I) chloride
  - Scandium chlorine
  - Scandium (III) chloride
34. What is the name of  $\text{Al}(\text{NO}_3)_3$  ?
- Aluminum nitride
  - Aluminum (III) nitrate
  - Aluminum nitrate
  - Aluminum (III) nitride
35. The Lewis dot structure of  $\text{NH}_3$  depicts \_\_\_\_\_ number of lone pairs on the central atom.
- There are no lone pairs of electrons
  - There is one lone pair of electrons
  - There are two lone pairs of electrons
  - There are three lone pairs of electrons

36. Which of the following is the correct Lewis dot diagram for water?



37. Which of the following is the correct Lewis structure for chlorine ( $\text{Cl}_2$ )?



38. Which element has chemical properties most similar to those of P?

a. N

c. S

b. Al

d. As

39. Which phrase describes an Aluminum (Al) atom?

a. A negatively charged nucleus, surrounded by negatively charged electrons.

b. A negatively charged nucleus, surrounded by positively charged electrons.

c. A positively charged nucleus, surrounded by negatively charged electrons.

d. A positively charged nucleus surrounded by positively charged electrons.

40. Which Lewis electron-dot diagram represents a fluorine atom?

