

PART 1. MULTIPLE CHOICE and FILL IN THE BLANK. Circle the best answer or fill in the blank. **CAUTION:** Some questions may appear similar to homework questions but are probably not exactly the same.

- The atomic number of an atom gives the number of (1 pt.)
 - protons
 - neutrons
 - protons plus neutrons
 - neutrons plus electrons
- Calcium bromide is an example of (2 pts.)
 - a cation
 - an anion
 - a covalent compound
 - an ionic compound
 - an isotope
- Name the group that contains Li, Na and K. _____ (1 pt.)
- Elements Fe, Co, and Ni are classified as _____ metals. (1 pt.)
- Magnesium and calcium are in the group named _____ (1 pt.)
- Argon and xenon are in the group called _____. (1 pt.)
- Chlorine and iodine are in the group called _____. (1 pt.)
- The mass number of ^{27}Al is _____. (1 pt.)
- A row on the Periodic Table is called a _____. (1 pt.)
- Atoms that have the same number of protons but different numbers of neutrons are called _____. (2 pts.)
- 11. Fill in the chemical name of the given chemical symbol.** (1 pt. each)
 - Ti _____
 - Au _____
 - B _____
 - Mn _____
- 12. Fill in the chemical symbol of the given chemical name.** (1 pt. each)
 - mercury _____
 - sodium _____
 - arsenic _____
 - lead _____

13. Identify each of the following as a **metal**, **nonmetal**, or **metalloid**. (1 pt. each)

a) sodium _____ b) phosphorus _____

c) potassium _____ d) silicon _____

14. How many protons does ^{31}P have? _____ (2 pts.)

15. How many neutrons does ^{31}P have? _____ (2 pts.)

16. How many total electrons does ^{31}P have? _____ (2 pt.)

18. Identify the number of **valence electrons** for each of the following. (1 pt. each)

a. oxygen _____ b. chlorine _____

c. phosphorus _____ d. lithium _____

19. How many total electrons does P^{-3} have? (2 pt) _____

20. Write the chemical formula for all of the naturally occurring diatomics. (4 pts.)

21. Which of the following has the largest atomic radii? (2 pts.)

a. B b. C c. Al d. Si

22. Which of the following has the largest ionization energy? (2 pts.)

a. B b. C c. Al d. Si

24. Which of the following has the largest electronegativity? (2 pts.)

a. B b. C c. Al d. Si e. Ne

26. (a) Draw the Electron Dot Structure for PH_3 . (4 pts.)

(b) What is the molecular geometry of this molecule? (2 pts.)

(c) Is this molecule polar or nonpolar? (1 pt.)

- A. polar
- B. nonpolar

(d) Will a sample of this compound have: (1 pt.)

- (1) dipole-dipole force (2) hydrogen bonding (3) dispersion forces (4) answers 1) and 3)
(5) all of the above

27. (a) Draw the Electron Dot Structure for OCl_2 . (4 pts.)

(b) What is the molecular geometry of this molecule? (2 pts.)

(c) Is this molecule polar or nonpolar? (1 pt.)

- A. polar
B. nonpolar

(d) Will a sample of this compound have: (1 pt.)

- (1) dipole-dipole force (2) hydrogen bonding (3) dispersion forces (4) answers 1) and 3)
(5) all of the above

28. (a) Draw the Electron Dot Structure for CBr_4 . (4 pts.)

(b) What is the molecular geometry of this molecule? (2 pts.)

(c) Is this molecule polar or nonpolar? (1 pt.)

- A. polar
B. nonpolar

- (d) Will a sample of this compound have: (1 pt.)
 (1) dipole-dipole force (2) hydrogen bonding (3) dispersion forces (4) answers 1) and 3)
 (5) all of the above

PART 3. Fill in the chemical name or the chemical formula, whichever is missing. (2 pts. each)

<u>Chemical Name</u>	<u>Chemical Formula</u>
a. carbonate ion	
b. chlorite ion	
c. lithium chlorate	
d. nickel (I) nitride	
e. iron (III) nitrate	
f. aluminum sulfate	
g. calcium hydroxide	
h.	NO_2^{-1}
i.	NO_2
j.	H_2O_2
k.	NiBr_2
L.	Al_2O_3
m.	$\text{Pb}(\text{SO}_3)_2$
n.	P_4S_6
o.	$\text{Fe}(\text{ClO}_2)_2$