



7) Write the electronic structure for Al.

8) Write the electronic structure for Be.

9) Write the electronic structure for S.

10) Write the electronic structure for Ca.

11) Write the electronic structure for the sodium ion.

12) Write the electronic structure for the chloride ion.

13) Write the electronic structure for the  $\text{P}^{3-}$  ion.

14) Write the electronic structure for the  $\text{Be}^{2+}$  ion.

15) Write the electronic structure for the fluoride ion.

16) Write the electronic structure for the  $\text{H}^+$  ion.

17) Using Lewis structures, draw  $\text{CH}_4$ .

18) Using Lewis structures, draw  $\text{MgS}$ .

19) Using Lewis structures, draw  $\text{CCl}_4$ .

20) Using Lewis structures, draw  $\text{AlF}_3$ .

21) Using Lewis structures, draw  $\text{MgF}_2$ .

22) The K shell consists of the 1s subshell. The maximum number of electrons the K shell (or ANY s subshell) may hold is \_\_\_\_\_ electrons.

23) The L shell consists of the 2s and 2p subshells. The maximum number of electrons the L shell may hold is \_\_\_\_\_ electrons. The maximum number of electrons ANY s subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons ANY p subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons ANY p **sub-subshell** may hold is \_\_\_\_\_ electrons.

24) The M shell consists of the 3s, 3p and 3d subshells. The maximum numbers of electrons the M shell may hold is \_\_\_\_\_ electrons or \_\_\_\_\_ electrons. The maximum number of electrons ANY s subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons ANY p subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons ANY p **sub-subshell** may hold is \_\_\_\_\_ electrons. The maximum numbers a d subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons a d sub-subshell may hold is \_\_\_\_\_ electrons.

25) The N shell consists of the 4s, 4p, 4d and 4f subshells. The maximum numbers of electrons the N shell may hold is \_\_\_\_\_ electrons or \_\_\_\_\_ electrons. The maximum number of electrons ANY s subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons ANY p subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons ANY p **sub-subshell** may hold is \_\_\_\_\_ electrons. The maximum numbers a d subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons a d **sub-subshell** may hold is \_\_\_\_\_ electrons.

The maximum number of electrons any f subshell may hold is \_\_\_\_\_ electrons. The maximum number of electrons an f **sub-subshell** may hold is \_\_\_\_\_ electrons.

26) In your own words explain Hund's rule.

27) Write the electronic configuration for Questions 7-10 using the shorthand notation.

28) Using the periodic table in Questions 1 and 2 as your guide, develop a "fill diagram" of the order in which the subshells fill with electrons on the space, below.

29) Explain the difference between a continuous spectrum and a line spectrum. Give an illustrative example of each, i.e., I'm not asking you to memorize the line spectrum for a specific element or ion, rather to use some artistic license in explaining the differences between the two.

30) Using the diagram (illustration) on p. 24 of this reading section, explain, describe and illustrate the Lyman, Balmer and Paschen series of light emission from atoms. HINT: you may wish to go to the library and use some textbooks or Google it. You MUST use your own words for your response. HINT: you may wish to complete this specific question prior to class tomorrow (use the space on the back if you need it, as well).