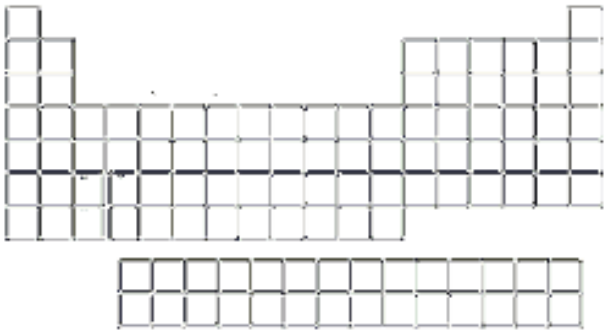
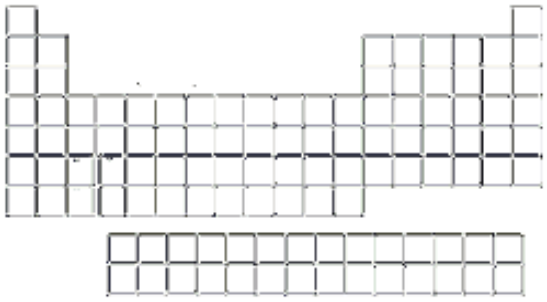
Chemistry 1 Exam Review
Part 2 – Chapter 6-9

14. Label the periodic table below to show each of the following: (pg 154-158)
    1) nonmetals, metals, metalloids
    2) transitions metals, inner transition metals
    3) alkali metals, alkali earth metals, halogens, noble gases
    4) charge of common ions of representative elements (Groups 1A-8A)



15. On the periodic table below, identify the s-, p-, d-, and f-blocks to show which energy sublevels are filled with valence electrons. (pg 159-161)



16. To what does each term refer on the periodic table? (pg 154)

    group / family

    period

17. What is similar about elements within the same <u>period</u> on the periodic table? (pg 159, 179-180)

    What is similar about elements within the same <u>group</u> on the periodic table? (pg 159, 179-180)

18. What are valence electrons? (pg 140,159)

How many valence electrons do atoms of these elements have?

Mg Al I K Cl N

19. Circle the ions shown below that are stable ions.

Ca^{+} Ne^{1-} O^{2-} Be^{2+} Cl^{-} Li^{3+}

20. What are orbitals? (pg 131-134)

21. What element has each electron configuration shown below? (pg 135-138)

$1s^2 2s^1$ $1s^2 2s^2 2p^5$

$1s^2 2s^2 2p^6 3s^2 3p^6$ $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$

22. What is the octet rule? (pg 168)

Use the octet rule to explain how and why ions form. (pg 215-216)

Explain the difference between cations and anions. (pg 212-214)

23. List some common properties of ionic compounds. (pg 217-218)

24. Write the correct formula of each ionic compound listed below. (pg 221-227)

potassium iodide	magnesium carbonate
aluminum sulfide	ammonium chloride
iron (III) bromide	iron (II) bromide

Write the correct name of each ionic compound.

LiCl	Al_2O_3
KNO_3	$MgCl_2$
CuO	Cu_2O

25. Explain why and how covalent bonds form. (pg 241-244)

26. Write the correct formula of each covalent compound. (pg 248-249)

diphosphorous pentoxide	diboron monosilicide
carbon tetrachloride	disilicon hexabromide
dinitrogen trioxide	carbon monoxide

Write the correct name of each covalent compound.

ClO_2	IF_5
N_2F_4	N_2O_3
PBr_3	Br_2S

27. Identify each compound as ionic or covalent.

$CaCl_2$ SCl_4 KOH CO_2 N_2O_5 BeF_2 H_2O_2

28. Which of the following contain <u>both</u> ionic and covalent bonds?

CaO CS_2 Na_2CO_3 NF_3 KNO_3 NiCl

29. What is a nonpolar bond? (pg 263-264)

What is a polar bond?

Identify bond as nonpolar or polar. Label each polar bond using δ^+ and δ^- to indicate its polarity.

C – O H – O O – O H – Cl C – H N – F

30. For each molecule or ion below: (pg252-265)
1) Draw the correct *Lewis structure*
2) Identify the shape (tetrahedral, trigonal pyramidal, bent, trigonal planar, or linear) and bond angle
3) Tell whether it is polar or nonpolar

H_2O CH_4

CO_2 NF_3

CH_2F_2 SO_4^{-2}

31. Which bond is most polar? Why? H – F N – F O – F F – F
(pg 263-264)