

## HW Solution for (Atomic Structure/Periodicity)

1.  
 s - 1 orbital  
 p - 3 orbitals  
 d - 5 orbitals  
 f - 7 orbitals
2.  
 4p - 6 electrons  
 3d - 10 e<sup>-</sup>  
 5f - 14 e<sup>-</sup>

					No. of Val. e <sup>s</sup>	GP No	electron dot str.
Na	11	$\begin{array}{c}   \\ 2 \\   \end{array}$	$\begin{array}{c}   \\ 8 \\   \end{array}$	$\begin{array}{c}   \\ 1e^- \\   \end{array}$	1	1A	Na <sup>•</sup>
Mg	12	$\begin{array}{c}   \\ 2 \\   \end{array}$	$\begin{array}{c}   \\ 8 \\   \end{array}$	$\begin{array}{c}   \\ 2e^- \\   \end{array}$	2	2A	Mg <sup>•</sup>
Cl	17	$\begin{array}{c}   \\ 7 \\   \end{array}$	$\begin{array}{c}   \\ 8 \\   \end{array}$	$\begin{array}{c}   \\ 7e^- \\   \end{array}$	7	7A	:Cl:

metals : Na + Mg  
 non-metals : Cl  
 metalloids : none

4. Fluorine ; 2nd Pd ; GP 7A

5. Sulfur ; 3rd Pd ; GP 6A

6.  $1s^2 2s^2 2p^6 3s^2 3p^6 \equiv [Ar]$

7. (a)  $1s^2 2s^2 2p^3$  (b)  $1s^2 2s^2 2p^6 3s^2$   
 (c)  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$  (d)  $1s^2 2s^2 2p^6 3s^2 3p^1$

## Periodic Table

1.  $ns^2 np^5 \Rightarrow$  Halogen

2.  $3s^2 3p^1$

3. Na GP 1A — Alkali metal  
 Be GP 2A — Alkaline earth metal  
 S GP 6A — Oxygen Group  
 Kr GP 8A — ~~Ha~~ Noble Gas

4. Consult Text, p 283, Ch 10.

5. a. Na  
 b. Ca  
 c. Fe  
 d. C  
 e. Si

6.  $H_2 N_2 O_2 F_2 Cl_2 Br_2 I_2$

7. a. I  
 b. K  
 c.  $S^{2-}$   
 d. Ca  
 e.  $I^-$   
 f. H

8. (a)  $M \rightarrow \underline{M^+} + e^-$

(b)  $X + e^- \rightarrow X^-$

#9, 10, 11, 12 : Consult Text, Ch 10 (p 280-281)