Monday Name: _____

Wednesday Name: _____

Directions: As usual – first 40 minutes without notes, with non-programmable calculator, with partner. Next 10 minutes with notes; last 25 minutes on board.

1) Complete the following periodic table using roman numerals for groups and Arabic numerals for periods.

	hydrogen 1 H	16 - 1994 1																	2 He
٦	1.0079 Ithium 3 Li	^{beryllium} 4 Be												5 B	6 C	nitrogen 7 N	8 0	fluorine 9 F	4.002 neor 10
۲	6.941 sodium 11 Na	9.0122 magnesium 12 Ma												10.811 atuminium 13 AI	12.011 silicon 14 Si	14.007 phosphorus 15 P	15.999 sultur 16 S	18.998 chlorine 17 Cl	20.18 argoi 18
╡	22.990 potassium 19 K	24.305 caldum 20		scandium 21	titanium 22 Ti	vanadium 23 V	chromium 24	manganese 25 Mn	26 Fe	cobalt 27	nickel 28 Ni	29	zinc 30 Zn	26,982 gallium 31	28.096 germanium 32 Ge	30.974 arsenic 33	32.065 selenium 34	35,453 bromine 35 Br	39.94 kryptc 36
	39.098 rubidium 37	40.078 strontium 38		44.956 yttrium 39	47.867 zirconium 40	50.942 niobium 41	51.996 molybdenum 42	54.938 technetium 43	55.845 ruthenium 44	58.933 rhodium 45	58.693 palladium 46	63.546 silver 47	65.39 cadmium 48	69.723 Indium 49	72.61 lin 50	74.922 antimony 51	78.96 tellurium 52	79,904 Iodine 53	83.80 xenor 54
\dashv	85.468 caesium 55	87.62 barium 56		88.906 lutetium 71	91.224 hafnium 72	92.906 tantalum 73	95.94 tungsten 74	[98] rhenium 75	101.07 osmium 76	102.91 Iridium 77	P0 106.42 platinum 78	Ag 107.87 gold 79	112.41 mercury 80	114.82 thallium 81	50 118.71 lead 82	3D 121.76 bismuth 83	127.60 polonium 84	126.90 astatine 85	131.25 radon 86
\dashv	CS 132.91 francium 87	Ba 137.33 radium 88		174.97 lawrencium 103	178,49 rutherfordium 104	180.95 dubnium 105	183.84 seaborgium 106	86.21 bohrium 107	0S 190.23 hassium 108	192.22 meitnerium 109	Pt 195.08	Au 196.97	Hg 200.59	204.38	207.2	BI 208.98	PO [209]	At [210]	[222]
	Fr [223]	Ra		Lr [262]	Rf [261]	Db [262]	Sg [266]	Bh [264]	Hs [269]	Mt [268]									
	*Lantl	hanide	series	lanthanum 57	cerium 58	praseodymium 59	neodymium 60	promethium 61	samarium 62	europium 63	64	terbium 65 Th	dysprosium 66	holmium 67	erbium 68	thulium 69	ytterbium 70		
	* * Act	inide se	eries	Ld 138.91 actinium 89	140.12 thorium 90	140.91 protactinium 91	144.24 uranium 92	[145] neptunium 93	150.36 plutonium 94	151.96 americium 95	157.25 curlum 96	158.93 berkelium 97	162.50 californium 98	164.93 einsteinium 99	167.26 fermium 100	168.93 mendelevium 101	173.04 nobelium 102		
	1			AC [227]	1h 232.04	Pa 231.04	U 238.03	NP [237]	Pu [244]	Am [243]	[247]	BK [247]	[251]	ES [252]	Fm [257]	[258]	NO [259]		

- 2) Complete the above periodic table by marking the s, p, d and f blocks on the periodic table in different colors.
- 3) Based on your studying, as well as on the periodic table above, how many electrons does an "s" subshell hold? "p"? "d"? "f"?
- 4) Ba has how many protons? Electrons?
- 5) B has how many electrons in its valence shell?
- 6) Sr has how many electrons in its valence shell?

- 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 P^{3-} ion.
- 14) Write the electronic structure for the Be^{2+} ion.
- 15) Write the electronic structure for the fluoride ion.
- 16) Write the electronic structure for the H^+ ion.

- 17) Using Lewis structures, draw CH₄.
- 18) Using Lewis structures, draw MgS.
- 19) Using Lewis structures, draw CCl₄.
- 20) Using Lewis structures, draw AIF₃.
- 21) Using Lewis structures, draw MgF₂.
- 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 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 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 numbers a d subshell may hold is ______ electrons. The maximum numbers a d 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 subshell may hold is ______ electrons. The maximum numbers a d subshell may hold is ______ electrons. The maximum numbers a d subshell may hold is ______ electrons. The maximum numbers a d subshell may hold is ______ electrons. The maximum numbers a d subshell may hold is ______ electrons. The maximum numbers a d subshell may hold is ______ electrons.

The maximum number of electrons any f s	ubshell may ho	ld is	electrons.	The maximum	
number of electrons an f sub-subshell may	y 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 illustratory 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).