

TEST 2 STUDY GUIDE

<i>Topic</i>	<i>Text Reference</i>
CHAPTER 4	
<ul style="list-style-type: none"> • Know the names and symbols of the main-group elements in periods 1-6 • Know what a period and a group represent in the periodic table • Classify elements as metals, non-metals and metalloids • Know the common properties of metals, non-metals and metalloids • Classify the groups in periodic table by their common names • Know the 4 postulates of Dalton's atomic theory • Describe the model of atom proposed by J.J. Thomson • Describe the model of atom proposed by Ernest Rutherford • Identify and characterize the subatomic particles • Know the current model of the atom • Determine the number of protons, neutrons, and electrons in an atom from atomic and mass numbers • Know what an isotope is, and how isotopes of atoms are different • Understand the affect of isotope abundance on the average mass of the atom • Know the Bohr model of the atom and the concept of energy levels • Know the s, p, d, and f sublevels and the number and location of each • List orbital sublevels according to energy • Write complete electron configuration for any atom in the first 3 periods • Draw orbital diagrams for atoms and determine the number of unpaired electrons • Use the periodic table and write abbreviated electron configuration for any atom in the first 6 periods • Know the location of various orbitals on the periodic table • Understand the relationship of period and group numbers to the valence electrons in an atom 	<p>4.1</p> <p>4.2</p> <p>4.2</p> <p>4.2</p> <p>4.2</p> <p>4.3, Notes</p> <p>Notes</p> <p>4.3</p> <p>4.3</p> <p>Notes</p> <p>4.4</p> <p>4.5</p> <p>4.5</p> <p>Notes</p> <p>4.6</p> <p>4.6</p> <p>4.7</p> <p>4.7</p> <p>4.7</p> <p>4.7</p> <p>4.7</p>
CHAPTER 6	
<ul style="list-style-type: none"> • Know what an ion is and differentiate between a cation and an anion • Predict charge of ions formed from any main-group element based on its location in periodic table • Differentiate between ionic and molecular (covalent) compounds • Characterize properties of ionic bonds • Name and write formulas for binary ionic compounds (Types I) • Name and write formulas for binary ionic compounds (Type II) • Name and write formulas for polyatomic ionic compounds • Characterize properties of covalent bonds • Differentiate and characterize polar and non-polar covalent bonds • Name and write formulas for binary covalent compounds • Name and write formulas for acids discussed in class • Know the concept of electronegativity and its relationship to bond polarity • Classify bonds as ionic, polar and non-polar covalent based on ΔEN • Identify properties associated with ionic and covalent compounds • Write Lewis structure for atoms and ions • Write Lewis structure for simple molecules and those with multiple bonds • Predict geometry of molecules using VSEPR model 	<p>6.1</p> <p>6.1</p> <p>Notes</p> <p>6.2</p> <p>6.3</p> <p>6.3</p> <p>6.4</p> <p>6.5</p> <p>Notes</p> <p>6.6</p> <p>Notes</p> <p>6.7</p> <p>6.7, Notes</p> <p>Notes</p> <p>6.5</p> <p>6.5</p> <p>6.8</p>

<i>Topic</i>	<i>Text Reference</i>
CHAPTER 6 (Cont'd)	
<ul style="list-style-type: none"> Classify molecules as polar or non-polar based on their shapes Identify and rank the attractive forces in molecules Predict main attractive force in various molecules 	6.8 6.9 6.9

REFERENCE DATA

The following reference data will be available for your use on the test.

Electronegativities of the Elements

H 2.20																	He n.a.
Li 0.98	Be 1.57											B 2.04	C 2.55	N 3.04	O 3.44	F 3.98	Ne n.a.
Na 0.93	Mg 1.31											Al 1.61	Si 1.90	P 2.19	S 2.58	Cl 3.16	Ar n.a.
K 0.82	Ca 1.00	Sc 1.36	Ti 1.54	V 1.63	Cr 1.66	Mn 1.55	Fe 1.83	Co 1.88	Ni 1.91	Cu 1.90	Zn 1.65	Ga 1.81	Ge 2.01	As 2.18	Se 2.55	Br 2.96	Kr 3.00
Rb 0.82	Sr 0.95	Y 1.22	Zr 1.33	Nb 1.60	Mo 2.16	Tc 1.90	Ru 2.20	Rh 2.28	Pd 2.20	Ag 1.93	Cd 1.69	In 1.78	Sn 1.96	Sb 2.05	Te 2.10	I 2.66	Xe 2.60
Cs 0.79	Ba 0.89	La 1.10	Hf 1.30	Ta 1.50	W 2.36	Re 1.90	Os 2.20	Ir 2.20	Pt 2.28	Au 2.54	Hg 2.00	Tl 1.62	Pb 2.33	Bi 2.02	Po 2.00	At 2.20	Rn n.a.
Fr 0.70	Ra 0.89	Ac 1.10	Rf n.a.	Db n.a.	Sg n.a.	Bh n.a.	Hs n.a.	Mt n.a.	Ds n.a.	Rg n.a.	Uub n.a.	—	Uuq n.a.	—	—	—	—

Summary of VSEPR Shapes

Number of electron pair groups around central atom		Molecular Shape	Bond Angle
Bonding	Non-bonding		
2	0	Linear	180
3	0	Trigonal planar	120
2	1	Bent	120
4	0	Tetrahedral	109.5
3	1	Pyramidal	109.5
2	2	Bent	109.5