

This practice packet is a general guideline to help you study. It is NOT a definitive list. There are potentially things on here that will not show up on the test, and there are potentially things not on this list that will show up on the test. Material that appeared in Warm Ups, Notes, Homework, Classwork, Labs, Study Materials, etc are all have the potential to appear on the test.

Start with the optional worksheets you already have!

- 1) Worksheet #9* from Chapter 4 packet
- 2) Worksheet #16* from Chapter 5 packet
- 3) Worksheet #5* from Chapter 6 packet

Answer the following questions:

- 4) Define: reactivity, atomic radius, electronegativity, ionization energy, electron affinity
- 5) Describe the pattern going up/down left/right for each of the trends above
- 6) Explain WHY each trend happens the way it does up/down left/right. Give the BEST answer not just an ok one.
- 7) Where are the most active metals located?
- 8) Where are the most active non-metals located?
- 9) Is a negative ion is larger or smaller than its parent atom?
- 10) Is a positive ion is larger or smaller than its parent atom?
- 11) Where is the highest electronegativity found?
- 12) Where is the lowest electronegativity found?
- 13) Elements of Group 1A are called
- 14) Elements of Group 2A are called
- 15) Elements in the middle of the periodic table are called
- 16) Group 7A elements are called
- 17) Group 8A elements are called
- 18) From left to right across the periodic table, do elements go from (metals to nonmetals) or (nonmetals to metals)
- 19) The most active element in Group 7A is
- 20) What orbitals are filling across the Transition Elements?
- 21) Elements within a group have the same number of what?
- 22) Are the majority of elements in the periodic table metals or non metals
- 23) Elements in the periodic table are arranged according to their what?
- 24) For each set of atoms, rank the atoms from smallest to largest atomic radius.
 - a) Li, C, F
 - b) Li, Na, K
 - c) Ge, P, O
 - d) C, N, Al
 - e) Al, Cl, Cu
- 25) For each set of atoms, rank them from lowest to highest ionization energy.
 - a) Mg, Si, S
 - b) Mg, Ca, Ba
 - c) F, Cl, Br
 - d) Ba, Cu, Ne
 - e) Si, P, He
- 26) For each set of atoms, rank them from lowest to highest electronegativity.
 - a) Li, C, N
 - b) Ne, C, O
 - c) Si, P, O
 - d) Mg, K, P
 - e) S, F, He

27) Circle the correct element.

Li	Si	S	metal
N	P	As	smallest ionization energy
K	Ca	Sc	largest atomic mass
S	Cl	Ar	member of the halogen family
Al	Si	P	greatest electronegativity
Ga	Al	Si	largest atomic radius
V	Nb	Ta	largest atomic number
Te	I	Xe	member of noble gases
Si	Ge	Sn	4 energy levels
Li	Be	B	member of alkali metals
As	Se	Br	6 valence electrons
H	Li	Na	nonmetal
Hg	Tl	Pb	member of transition metals
Na	Mg	Al	electron config. ending in s^2p^1
Pb	Bi	Po	metalloid
B	C	N	gas at room temperature
Ca	Sc	Ti	electron config. ending in s^2d^2

Identify type of bond and then either write the name or write the formula:

- | | | |
|--------------------------------------|----------------------------------|------------------------------|
| 28) Sodium iodide | 33) $(\text{NH}_4)_2\text{O}$ | 38) Phosphorus pentachloride |
| 29) NH_4OH | 34) N_2O_2 | 39) dioxygen difluoride |
| 30) carbon tetrahydride | 35) SO_2 | 40) strontium borate |
| 31) N_2O_4 | 36) $\text{Mg}_3(\text{PO}_3)_2$ | 41) sulfur trioxide |
| 32) $\text{C}_2\text{H}_4\text{O}_2$ | 37) P_4O_{10} | 42) sodium sulfate |

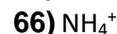
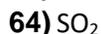
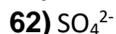
Answer the following questions about bonding:

- 43) How are ionic bonds, covalent bonds, and metallic bonds different?
- 44) Give one examples of a compound for each of the above bonds.
- 45) If you have a compound with a high electronegativity difference what type of bond is it?
- 46) What is the strongest intermolecular bond?
- 47) What type of intermolecular bond does water have?
- 48) What type of bond holds Iron together?
- 49) List the following intermolecular forces/structures from Strongest to Weakest:
Hydrogen Bonding, Metallic Bonding, London Dispersion, Ionic Lattices, Dipole-Dipole, Network Covalent
- 50) Draw Lewis Structures of 3 water molecules next to each other and label the hydrogen bonds with dashed lines.
- 51) Put the compounds below in order of intermolecular forces.
- | Name | Boiling point |
|----------------------|-----------------------|
| Dicarbon hexahydride | -89°C |
| Diamonds (carbon) | 4827°C |
| Sodium chloride | $1,465^\circ\text{C}$ |
| Dihydrogen monoxide | 100°C |
- 52) Which of the above is a network covalent bond? Which is a ionic lattice? Which is a hydrogen Dipole Dipole?
- 53) How many valence electrons are there in each of the elements and compounds below?
- | | | |
|-------|------------------|-------------------------|
| a. Ca | c. Se | e. NF_3 |
| b. P | d. NH_3 | f. H_2S |

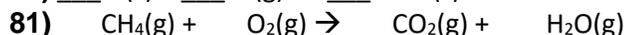
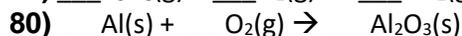
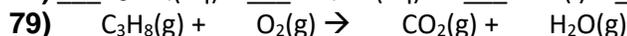
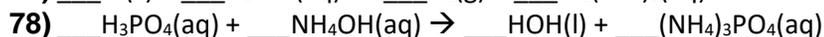
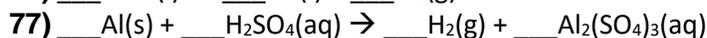
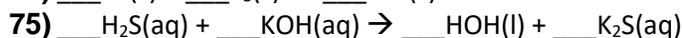
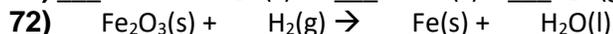
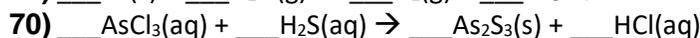
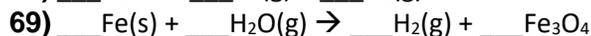
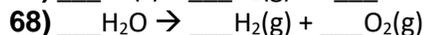
Draw the lewis structure for each of the compounds below and show if they are ionic or covalent using the electronegativity values from your notes/worksheets:

- | | | |
|-------------------|----------------------------|-------------------|
| 54) LiF | 57) CH_3OH | 60) CH_4 |
| 55) MgO | 58) NH_3 | |
| 56) CH_4 | 59) H_2O | |

Draw the Lewis Structures of the following:



Identify the type of reaction and balance. For single and double replacements, write the net ionic equation.



Identify the type, predict the products, balance. For any single and double replacement reactions use your solubility rules to do the net ionic equation as well.

