

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

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

- | | | |
|-------------------------------------|----------------------------------|------------------------------|
| 4) Sodium iodide | 9) $(\text{NH}_4)_2\text{O}$ | 14) Phosphorus pentachloride |
| 5) NH_4OH | 10) N_2O_2 | 15) dioxygen difluoride |
| 6) carbon tetrahydride | 11) SO_2 | 16) strontium borate |
| 7) N_2O_4 | 12) $\text{Mg}_3(\text{PO}_3)_2$ | 17) sulfur trioxide |
| 8) $\text{C}_2\text{H}_4\text{O}_2$ | 13) P_4O_{10} | 18) sodium sulfate |

Answer the following questions about bonding:

- 19) How are ionic bonds, covalent bonds, and metallic bonds different?
- 20) Give one examples of a compound for each of the above bonds.
- 21) If you have a compound with a high electronegativity difference what type of bond is it?
- 22) What is the strongest intermolecular bond?
- 23) What type of intermolecular bond does water have?
- 24) What type of bond holds Iron together?
- 25) List the following intermolecular forces/structures from Strongest to Weakest:
Hydrogen Bonding, Metallic Bonding, London Dispersion, Ionic Lattices, Dipole-Dipole, Network Covalent
- 26) Draw Lewis Structures of 3 water molecules next to each other and label the hydrogen bonds with dashed lines.
- 27) Put the compounds below in order of intermolecular forces.

Name	Boiling point
Dicarbon hexahydride	-89°C
Diamonds (carbon)	4827°C
Sodium chloride	1,465 °C
Dihydrogen monoxide	100 °C

- 28) Which of the above is a network covalent bond? Which is a ionic lattice? Which is a hydrogen Dipole Dipole?
- 29) How many valence electrons are there in each of the elements and compounds below?
 - a. Ca
 - b. P
 - c. Se
 - d. NH_3
 - e. NF_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:

- | | | |
|-------------------|----------------------------|-------------------|
| 30) LiF | 33) CH_3OH | 36) CH_4 |
| 31) MgO | 34) NH_3 | |
| 32) CH_4 | 35) H_2O | |

Draw the Lewis Structures of the following:

- | | | |
|------------------------------|----------------------------|---------------------|
| 37) CH_2Cl_2 | 39) CH_3OH | 41) NO_3^- |
| 38) SO_4^{2-} | 40) SO_2 | 42) NH_4^+ |

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

- 43) $\text{Cu(s)} + \text{O}_2\text{(g)} \rightarrow \text{CuO(s)}$
44) $\text{H}_2\text{O} \rightarrow \text{H}_2\text{(g)} + \text{O}_2\text{(g)}$
45) $\text{Fe(s)} + \text{H}_2\text{O(g)} \rightarrow \text{H}_2\text{(g)} + \text{Fe}_3\text{O}_4$
46) $\text{AsCl}_3\text{(aq)} + \text{H}_2\text{S(aq)} \rightarrow \text{As}_2\text{S}_3\text{(s)} + \text{HCl(aq)}$
47) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O(s)} \rightarrow \text{CuSO}_4\text{(s)} + \text{H}_2\text{O(g)}$
48) $\text{Fe}_2\text{O}_3\text{(s)} + \text{H}_2\text{(g)} \rightarrow \text{Fe(s)} + \text{H}_2\text{O(l)}$
49) $\text{CaCO}_3\text{(s)} \rightarrow \text{CaO(s)} + \text{CO}_2\text{(g)}$
50) $\text{Fe(s)} + \text{S}_8\text{(s)} \rightarrow \text{FeS(s)}$
51) $\text{H}_2\text{S(aq)} + \text{KOH(aq)} \rightarrow \text{HOH(l)} + \text{K}_2\text{S(aq)}$
52) $\text{NaCl(l)} \rightarrow \text{Na(l)} + \text{Cl}_2\text{(g)}$
53) $\text{Al(s)} + \text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{H}_2\text{(g)} + \text{Al}_2\text{(SO}_4)_3\text{(aq)}$
54) $\text{H}_3\text{PO}_4\text{(aq)} + \text{NH}_4\text{OH(aq)} \rightarrow \text{HOH(l)} + \text{(NH}_4)_3\text{PO}_4\text{(aq)}$
55) $\text{C}_3\text{H}_8\text{(g)} + \text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + \text{H}_2\text{O(g)}$
56) $\text{Al(s)} + \text{O}_2\text{(g)} \rightarrow \text{Al}_2\text{O}_3\text{(s)}$
57) $\text{CH}_4\text{(g)} + \text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + \text{H}_2\text{O(g)}$

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.

- 58) $\text{Mg} + \text{O}_2 \rightarrow$
59) $\text{CH}_4 + \text{O}_2 \rightarrow$
60) $\text{AgNO}_3 + \text{NaCl} \rightarrow$
61) $\text{HgO} \rightarrow$
62) $\text{Cu} + \text{AgNO}_3 \rightarrow$
63) $\text{Zn} + \text{HCl} \rightarrow$
64) $\text{FeS} + \text{HCl} \rightarrow$
65) $\text{MgCl}_2 \rightarrow$
66) $\text{C}_2\text{H}_6 + \text{O}_2 \rightarrow$
67) $\text{K} + \text{Cl}_2 \rightarrow$