






## CHEM 102 Review Guide

### Chapter 16 – WATER RESOURCES

1. Explain how reverse osmosis (RO) works. What does reverse osmosis remove from water?
2. (a) Identify the four stages involved in the purification of drinking water. (b) What kind of water contaminants is/are removed during each of these stages?
3. (a) What is considered “hard” water? (b) Why is “hard” water undesirable? (c) What are the major ions responsible for water hardness?
4. What are pathogens? Why could they be present in water?
5. Give two examples of pathogenic *bacteria* that can be found in drinking water. What health problems do they cause if not removed from water?
6. What kinds of pathogens can cause polio and hepatitis-A?
7. Give two examples of protozoan pathogens and their health effect.
8. (a) Identify the 4 groups of drinking water contaminants whose standards (as maximum contaminant level) have been set by the Safe Drinking Water Act (SDWA). (b) Give examples of specific contaminants under each group.
9. Specify two carcinogens whose maximum contaminant level goal (MCLG) is zero.
10. Identify the (a) source and (b) health effect of each of the following contaminants:
  -  Lead
  -  Mercury
  -  Arsenic
  -  Fluoride
  -  Nitrate,  $\text{NO}_3^-$

NOTE: You might have to search for the source of some of these inorganic contaminants.