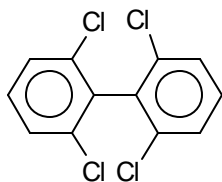
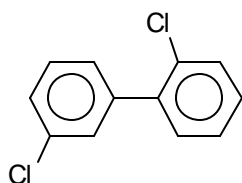
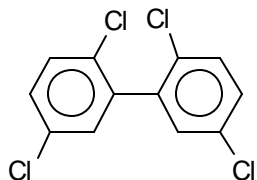


Name \_\_\_\_\_

Page 1

**Answers are not to exceed one page for each question**

1. (20) Circle the PCB congeners that you would expect to be persistent (less degradable) during aerobic attack on Aroclor 1254 by PCB degraders from the genus, *Micrococcus*? Are these compounds susceptible to any aerobic attack? Explain your answers.



Name

Page 2

2. (30) Give some advantages and disadvantages for cometabolism compared to use of a toxic compound for growth. Use examples when applicable.

Cometabolism

Advantages

Disadvantages

Use of toxic compound for growth

Advantages

Disadvantages

Name

Page 3

3. (30) Compare aerobic and anaerobic degradation of toluene. For both types of attacks discuss the cofactors that needed, activation steps, number of steps prior to cleavage, how the ring stability is broken, and relative rates.

**Name** \_\_\_\_\_

**Page 4**

4. (20) What biochemical factors are required for cometabolism of trichloroethylene? What enzymes are involved in aerobic cometabolism of TCE? What substrates and/or cofactors do these enzymes use in the oxidation of TCE?