**Part 1: Fill in the Blank**

1. Aldehyde + alcohol 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Hemiacetal + alcohol 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_
3. Write the general “c” formula for a hemiacetal \_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Write the general “c” formula for an acetal \_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. A cyclic hemiacetal is formed from a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Part 2: Hemiacetal formation (not cyclic)**

1. 2-methylpentanal + 1-ethanol
2. Butanal + 2-propanol

**Part 3: Cyclic hemiacetal formation** (just put it into a ring)

1. 6-hydroxyhexanal
2. 6-hydroxy-2-heptanone

**Part 4: Acetal formation**

1. Form an acetal from heptanal and 1-butanol (This is a 2 step reaction)
2. Form the hemiacetal:

Heptanal + 1-butanol

1. Form the acetal:

Hemiacetal product from part 1 + more 1-butanol

Multiple Choice Practice

1. Secondary alcohols will oxidize to: \_\_\_\_\_
   1. Alkanes
   2. Aldehydes
   3. Ketones
   4. Ethers
   5. Esters
2. What is the name of CH3CH2CH2CHO \_\_\_\_\_
   1. 1-butenal
   2. 1-butanol
   3. butenal
   4. butanal
   5. 1-butanone
3. The reduction of 2-heptanone will yield \_\_\_\_\_
   1. 1-heptanol
   2. 2-heptanol
   3. 2-heptene
   4. 1-heptanal
   5. 3-heptene
4. What is the molecular formula for 3-octanone? \_\_\_\_\_
   1. C8H16OH
   2. C8H18O
   3. C8H16
   4. C8H16O
   5. C8H18