Chapter 22 Book Problems

22.21, 22.23 (a) (b), 22.25, 22.27, 22.28 (To answer this problem you need to realize that a mild oxidizing agent can oxidize an aldehyde, but not a hemiacetal.)

22.29-22.35, 22.37,22.38,22.45, 22.46, 22.48,

22.50 **Adapted** Instead of drawing the cyclic structure mannose redraw the structure shown and indicate which atoms are involved in the reaction that forms a 6 member ring. (Which oxygen atoms becomes part of the ring? Is an hydroxyl (-OH) group lost in this reaction?)

22.52 **Adapted** Instead of drawing the cyclic structure D-Ribulose redraw the structure shown and indicate which atoms are involved in the reaction that forms a 5 member ring. (Which oxygen atoms becomes part of the ring? Is an hydroxyl (-OH) group lost in this reaction?)

22.57 (a carboxylic acid has the functional group –COOH or $-COO^-$, 22.58, 22.59, 22.60,

22.61 Adapted Instead of using the sugar in problem 22.50, use the two forms of glucose seen in diagram 22.3. (Methanol is CH3OH)

22.64, 22.65, 22.66, 22.68, 22.70, 22.71, 22.72, 22.75*, 22.76, 22.80, 22.81, 22.83, 22.90 **Adapted** Copy the Haworth structure of sucrose that is shown at the bottom of p. 701. Indicate on this structure which atom, or atoms, are involved in the glydosidic bond. Now go to page 695. Copy the Haworth diagrams of both ring forms of D-galactose. Which ring form is used in the glycosidic bond it forms to sucrose. Indicate which atom, or atoms, are involved in the bond. Sucrose is not a reducing sugar, do you expect raffinose to be a reducing sugar.

22.92, 22.94, 22.95, 22.96

*This type of problem **will not** be on the April 17 exam.

Information that will be available to you during the test, is given on the following page

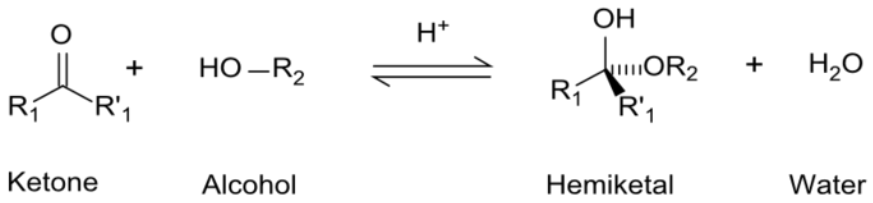
Prefixes used to name sugars

mono	One
di	Two
tri	Three
tetr	Four
Pent	Five
Hex	Six
Sept	Seven

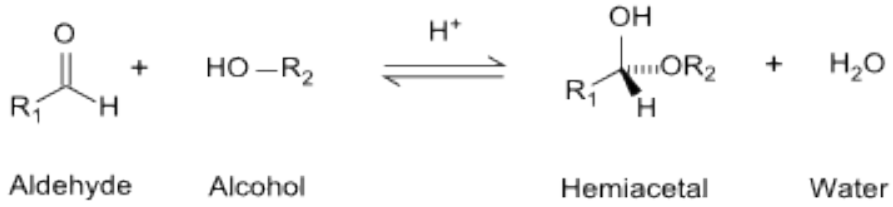
alpha isomers have groups on **opposite** sides; alpha = α

beta isomers have groups on the **same** side; beta=β

Reaction between a ketone, and an alcohol forms a hemiketal.



The reaction between an aldehyde and an alcohol form a hemiaccetal.



Similar reactions between a hemiketal and a hemiacetal form a ketal and an acetal.