Chem 109 C

Armen Zakarian
Office: Chemistry Bldn 2217

Chapter 21 Practice Problems set 2
Practice problem 1

Predict whether L-altrose exists preferentially as a pyranose or a furanose. (Hint: in the most stable arrangement for a ring, all the adjacent substituents are trans)
Draw Haworth projections and conformational drawings for 

- \( \alpha \)-D-gulopyranose
- \( \beta \)-D-galactopyranose
- \( \alpha \)-D-ribopyranose
- propyl \( \alpha \)-D-ribofuranoside and propyl \( \alpha \)-L-ribofuranoside
Disaccharide X is hydrolyzed to D-hexoses A and B. All sugars (X, A, B) give a positive Tollens test (oxidized with Ag₂O). A reacts with Br₂ (decolorizes), and B does not. Under aqueous basic conditions, A gives some amount of B. When A is treated with NaBH₄, an optically inactive product is formed. Wohl degradation of A followed by reduction with NaBH₄ gives an optically active product. When X is treated with excess CH₃I, Ag₂O and an α-glycosidase, A methylated at positions 2, 3, 4, and 6 is formed, along with B methylated at positions 1, 3, and 4.

Provide the structure of X