Carb CW-HW 2 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ #\_\_\_\_\_\_\_\_

CW:

1. Pick up a CD Rom. Go to Biochemistry (from main menu) and the Carbohydrates. Do D, L Isomerism Practice.
2. Regarding hemiacetals: \*(See PPt and p. 523). Although I won’t require that you draw the formation, I do want you to understand it. Go over my “rules for drawing” in the PPt and follow exp from the PPt and/or the book.
3. What is the general reaction to form a hemiacetal?
4. What is a Haworth projection?
5. What is an anomeric carbon?
6. Distinguish between Alpha (A) and beta (B).
7. What does “pyran” mean?
8. Look at C’s #2,3,4 of D-Glucose. Where are the OH’s in a Fisher diagram (rt or left)?
9. Where will they be in cyclic form? (READ THE RULES IN PPt)
10. How does the –OH on C #5 “reposition” before the ring is “closed”?
11. Where is CH2OH (#6) positioned before the hemiacetal is formed?
12. What 2 groups should be close to each other before hemiacetal formation?
13. What must happen (“bond-wise”) for the ring to close?
14. Where is the H (of the –OH from C #5) bond upon closing the ring?
15. Where is the anomeric C in the ring?
16. Is the anomeric C chiral or achiral?
17. Distinguish between A-D-glucopyranose and B-D-glucopyranose.
18. Are the A and B forms enantiomers?
19. Explain the isomerism classification of the 2 forms.
20. CD Rom- Go to Fisher and Haworth projections in Carbohydrates. Do the Exercise problems (4).
21. How does Glucose differ from Galactose? (regarding –OH)
22. What type of isomerism do the 2 above display?
23. Practice drawing pyranose chair (6 membered ring) formations. Draw both 3 times each. \*Build the model, if seeing it in 3-D helps. Flip the ring, just like you did in the Stereochem Model Lab. \*\*You will NOT have to draw these on the test, btw.
24. What position is the –OH in (anomeric C) in the B form?
25. What is –OH position in the A form?
26. Which anomer is more stable and predominates in aqueous solution? Why?

HW-

1. What are the 3 most important monosaccharides?

11. Give the functions of #10.

1. a)What is a disaccharide?; b) By which kind of reaction does it form?; c) What is removed?
2. Give 3 examples of disaccharides. What are the monosaccs in each? Give general characteristics of each.
3. What is a glycosidic linkage?
4. NOTE: You will NOT have to know which disaccharides have A linkages and which have B linkages! Or, which are 1,2, which are 1,4, etc. I will only ask you (by showing a picture): a) if the linkage is 1,2 or 1,4; b) if it’s sucrose (you should know because fructose is a 5 sided ring).

15. DRAW the reaction for the formation of maltose. Circle where dehydration occurs. Show the 1-4 glycosidic linkage.

16. Follow directions for #15 for sucrose formation. Show a 1.2 glycosidic bond

18. Define polysaccharide.

19. a)Which polysaccs are found in plants? B)Where are they found in the plant? C)Which is not digestable by man?

20. What is cellulose?

21. What is glycogen? Where is it found? Why do we need it?

22. Why is cellulose not digestable by humans?

23. A)What is starch? B)What are the 2 forms? C)What does hydrolysis of each yield?