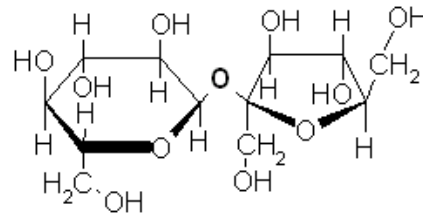


CORRECTION SCHEME FOR FINAL BCH 2140

\\bk2\5feMezlEssayCor filpt

Use only words and the sugar names that you learned in class to describe this structure (you can call it Vermatan) in an unambiguous manner (unambiguous means that it could be drawn by one your colleagues from your verbal description).

Draw the sugar on the left side of Vermatan in the furanose form.



Marks

2	D-gluco- pyranose	0.6 for D , 0.7 for name	0.7 for cycle
2	linked α 1, β 2	0.5 for each anomer, 0.5 for each position	
2	D-fructo- furanose	0.6 for D , 0.7 for name	0.7 for cycle

If either sugar is not named but they are described as a D-aldo-pyranose with Same-Opposite-Same configurations and a D-keto-furanose with opposite- same configurations , give 0.4 marks for each name

If either sugar is not named but described as an D-aldo pyranose with D-L-D configurations and a D-keto furanose with L-D configurations give 0.35 marks for each name.

If they say draw a hexagon and then grade-school-style spell out the specifics at each position and all is RIGHT , give 40% of marks.

Give 4 (of 6) If for all of the above they just say sucrose.

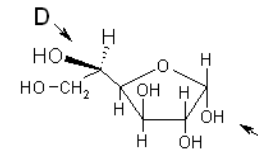
4 marks for the furanose form of D-glucose It is ->

1.5 for furanose ring (only 0.4 if carbon 1 is not a hemiacetal)

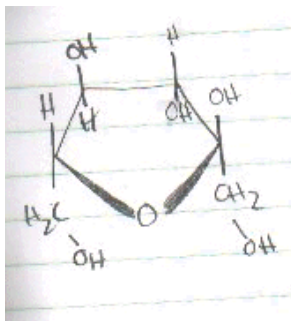
1 for correctly showing that is D

1.5 for the correct orientation of the 4 other configurations (0.4 each)

Ok if the furanose is drawn as a Fischer projection, grade as above.



10= total marks



If furanose is drawn flipped r-l, o forward, etc., yet configurations are ok give 100%.

OK, if somebody decides to start numbering from the carboxyl.

<- What they have drawn is keto sugar! And shows that they understand nothing about the reaction.

<- Give 1.5/4 for this structure

Further breakdown on the grading of this structure:

0.75 for keto furanose ring (Give 0.3 out of .75 if this weird ring closure does not have an OH

0.35 if it shows D at carbon 5

0.2 configuration at C4

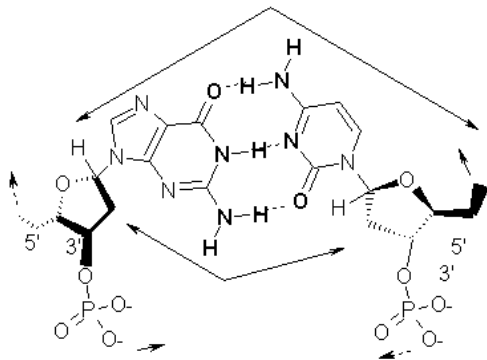
0.2 configuration at C3

Total 1.5/4

@ **ENDFIELD** | nxt: specify draw as Haworth **ENDRECORD**

@@2**EXENDFIELD** #zne503 znd1b **ENDFIELD** ^q **Correction of 50413****ENDFIELD**

1) Draw, as 3'-phosphates, a G-C base pair in Watson-Crick DNA. In addition to the hydrogen bonds, your figure should show the configuration at each position of the sugar and ALL the atoms and double bonds of the bases. Use your figure to explain why an A-T base pair has one less hydrogen bond (no drawing required for this part of the question).



Note: the bases are missing Hs on this figure
But the problem says ALL atoms and the Hs
Must be shown for full marks (see below)
Student does not have to draw sugars
in perspective or give numbering
It is not necessary to talk about
grooves (the arrows on left)

Principle: One of the bases can be drawn in the standard presentation- the other has to be flipped over

2 for G

1 for just atoms of base, 0.5 for Hs, 0.5 for double bonds

2 for C

2 for H bonds

0.8/each. only 1 if orientation of H bonds is wrong

-1 for every really stupid hydrogen bond

give only 1.2 of 2 marks for drawing negligence that shows : O...NH₂, -0.4 if just 1 bond is like this

1.5 sugar (0.5 ring, 0.5 configurations, 0.5 attachment to base)

-0.5 if C5 of sugar missing, -0.5 if sugar is ribose

1.0 for phosphate (0.5 for structure, 0.5 attachment point to sugar)

we will accept diesters...

-0.3 If gives both 5' and 3' p

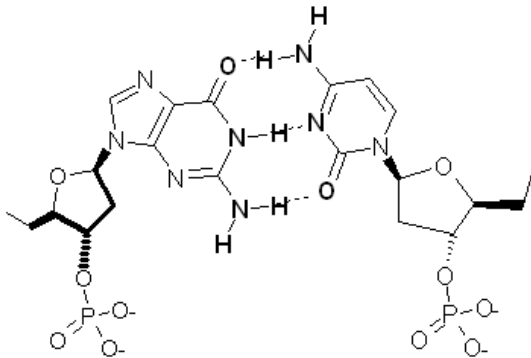
1.5 1: A is missing a group at position 2. 0.5: group is a hydrogen donor

An acceptable answer is that A does not have an acceptor for the hydrogen bond
-0.8 if structure of A is wrong, but concept is right; -0.5 if position on A is not given
-0.8 if wrong position on A

10 = total

Special cases : total stupidity in terms of putting together as a base pair. Give only 3/10 for whole question even if basic structures are right.

H-bonds are perfect but one phosphate joins together sugars of G and C! Give 4/10



Anomeric bond to base is beta

A drawing like this is OK
(3 configurations on sugar are OK)