

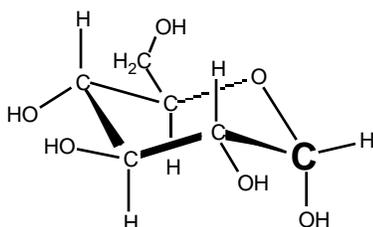
MiniQuiz 4

Chem 111, Section 2 (Martin, 10:10am)

Fall 1998

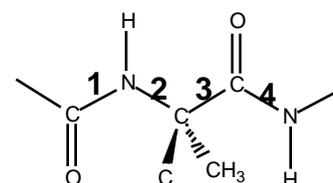
Fill out the name and student ID section of the OpScan sheet completely. Also enter your exam number, as indicated below. **Failure to correctly do so will result in the loss of 2 points on this quiz.**

1. If carbon is sp^2 hybridized, how many pure p orbitals remain on the atom?
a) 0 b) 1 c) 2 d) 3 e) 4
2. For the same pair of atoms, bond length decreases with increasing bond order (Q10.12).
a) true b) false
3. Which hybrid orbital set is used for carbon in CH_3F (Q10.16)?
a) none b) sp c) sp^2 d) sp^3 e) sp^3d
4. Which hybrid orbital set is used for nitrogen in ammonia, NH_3 ? (Q10.16)
a) none b) sp c) sp^2 d) sp^3 e) sp^3d
5. Which hybrid orbital set is used for sulfur in SO_2 (Q10.36)?
a) none b) sp c) sp^2 d) sp^3 e) sp^3d



6. Which hybrid orbital set is used for the carbon shown in **bold** in the sugar glucose, shown at left?
a) none b) sp c) sp^2
d) sp^3 e) sp^3d

7. For the short polypeptide shown at right, which statement below is most true?
a) Bonds 1 and 4 allow free rotation; bonds 2 and 3 do not.
b) Bonds 2 and 3 allow free rotation; bonds 1 and 4 do not.
c) Bonds 1 and 2 allow free rotation; bonds 3 and 4 do not.
d) Bonds 1, 2, and 4 allow free rotation; bond 3 does not.
e) All bonds allow free rotation.



8. What is the bond order in H_2^+ (Q10.30)?
a) 0 b) 1/3 c) 1/2 d) 1 e) 2
9. What is the bond order in He_2 (Q10.30)?
a) 0 b) 1/3 c) 1/2 d) 1 e) 2
10. For the molecule F_2 , consider the electron(s) with the highest energy. In which molecular orbital does it(they) reside (Q10.47)?
a) $2s$ b) $2s^*$ c) $2p$ d) $2p^*$ e) $2p^*$

IMPORTANT: Place the number 2 in column K of your OpScan sheet.