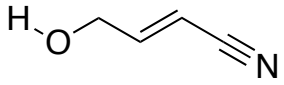
Chem 331, 2011, Quiz 1, 9/30/11 Name_____

1. Give the hybridization for each non-H atom (6 points)



Quiz continued on next page. The following table may be useful

Table 4-3 Change in Free Energy on Flipping from the Cyclohexane Conformer with the Indicated Substituent Equatorial to the Conformer with the Substituent Axial

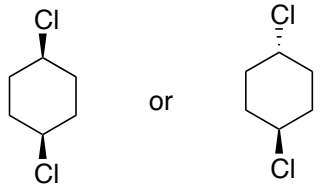
Substituent	$\Delta G°$ [kcal mol^{-1} (kJ mol^{-1})]		Substituent	$\Delta G°$ [kcal mol^{-1} (kJ mol^{-1})]	
H	0	(0)	F	0.25	(1.05)
CH_3	1.70	(7.11)	Cl	0.52	(2.18)
CH_3CH_2	1.75	(7.32)	Br	0.55	(2.30)
$(CH_3)_2CH$	2.20	(9.20)	I	0.46	(1.92)
$(CH_3)_3C$	≈ 5	(21)			
HO—C(=O)	1.41	(5.90)	HO	0.94	(3.93)
			CH_3O	0.75	(3.14)
			H_2N	1.4	(5.9)
CH_3O—C(=O)	1.29	(5.40)			

Increasing size; Increasing $\Delta G°$

Note: In all examples, the more stable conformer is the one in which the substituent is equatorial.

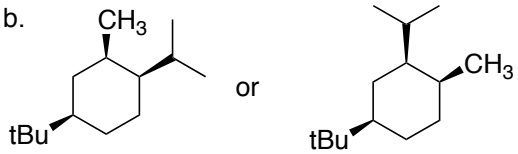
2. (7 points each) For each pair of cyclohexanes, which is more stable. Explain your reasoning in detail. Your answer should include drawings of cyclohexane conformations. No credit for a correct guess, only a correct explanation.

a.



A **B**

b.



A **B**