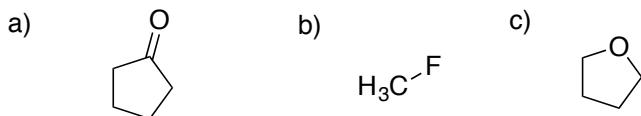
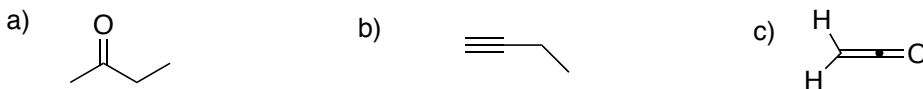


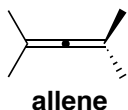
1) Approximate the direction of the net dipole of the following molecules



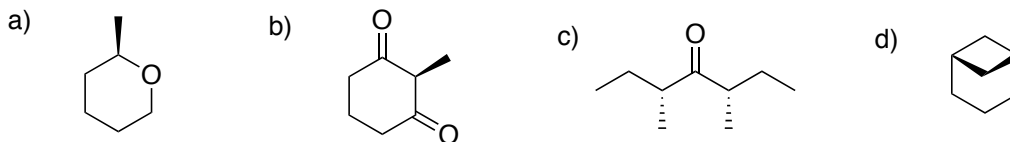
2) Label all non-hydrogen atoms sp^1 , sp^2 , or sp^3



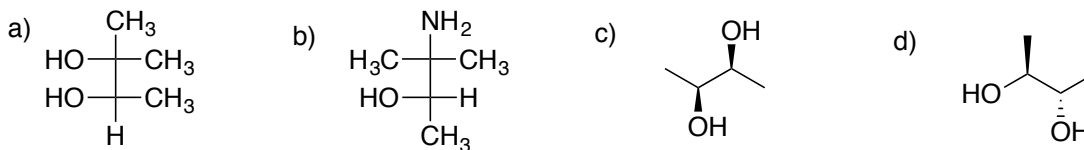
3) Allenes are not flat but has 3-D geometry to it. Explain this using molecular orbitals.



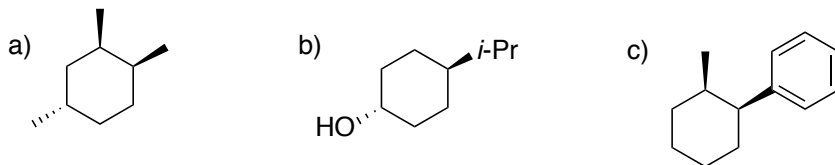
4) Circle all stereocenters and label them as (R) or (S). Identify the molecules as chiral, achiral, or meso.



5) Convert the following Fisher projections into Sawhorse Diagrams or visa versa.



6) Convert the following into their lowest energy chair conformation.



7) Draw all Eclipsed and Staggered Newman prjections of the following molecules and predict the highest and lowest energy.

