

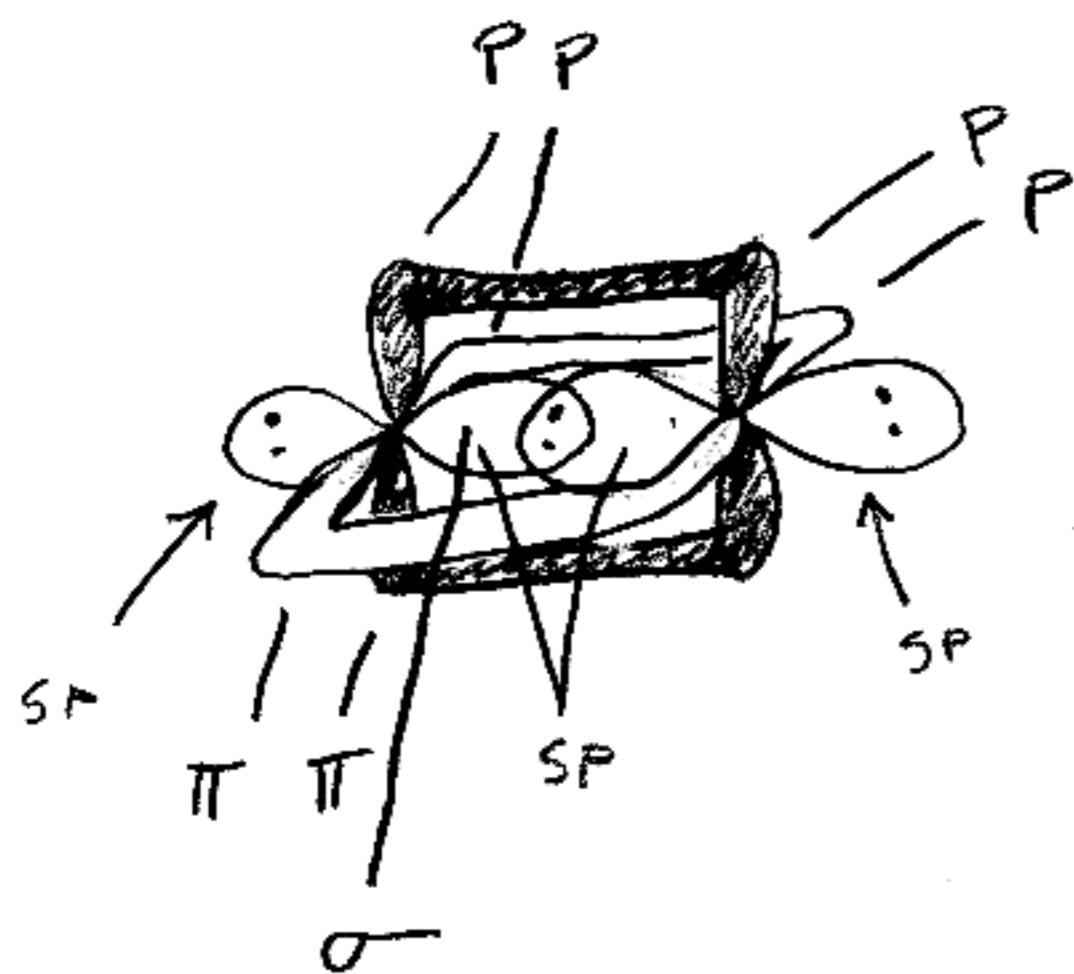
Additional Practice Problems for Midterm 3

KEY

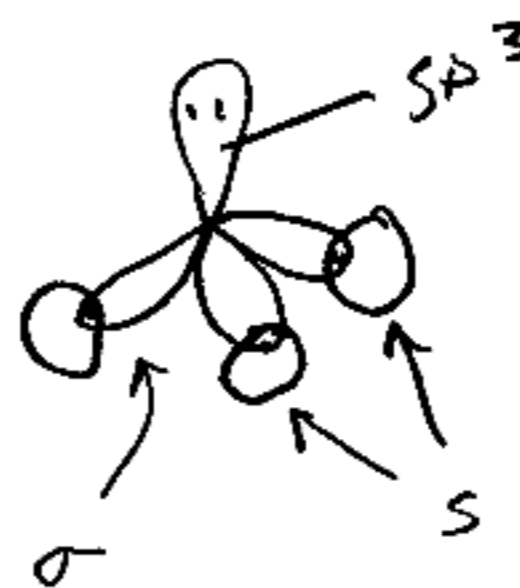
Write your answer in the space provided or on a separate sheet of paper.

- 1) Sketch a model of the following molecules using hybridized and/or unhybridized orbitals. Label each orbital and bond type. Indicate all bond angles and if each bond can freely rotate.

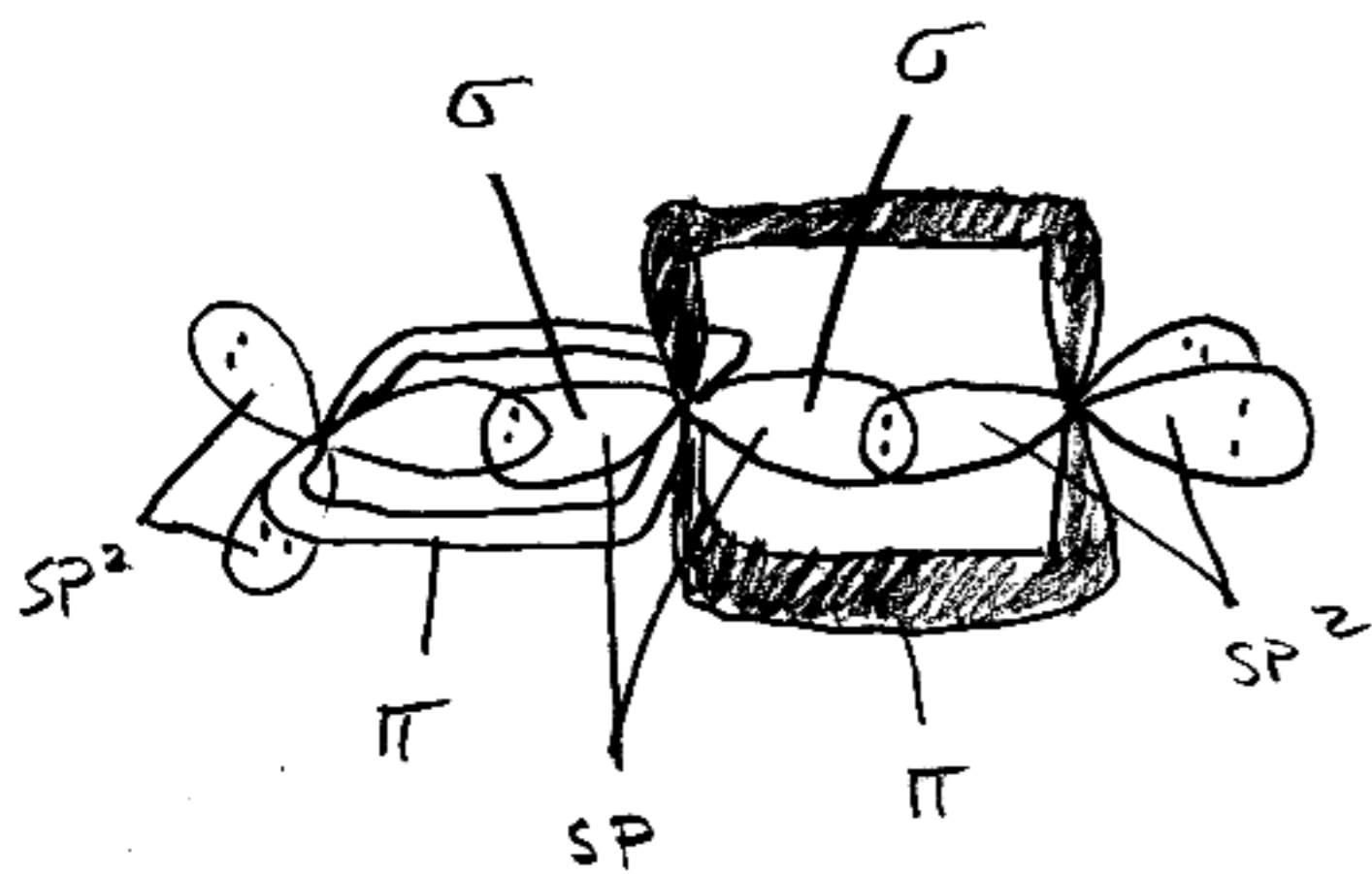
a) N_2



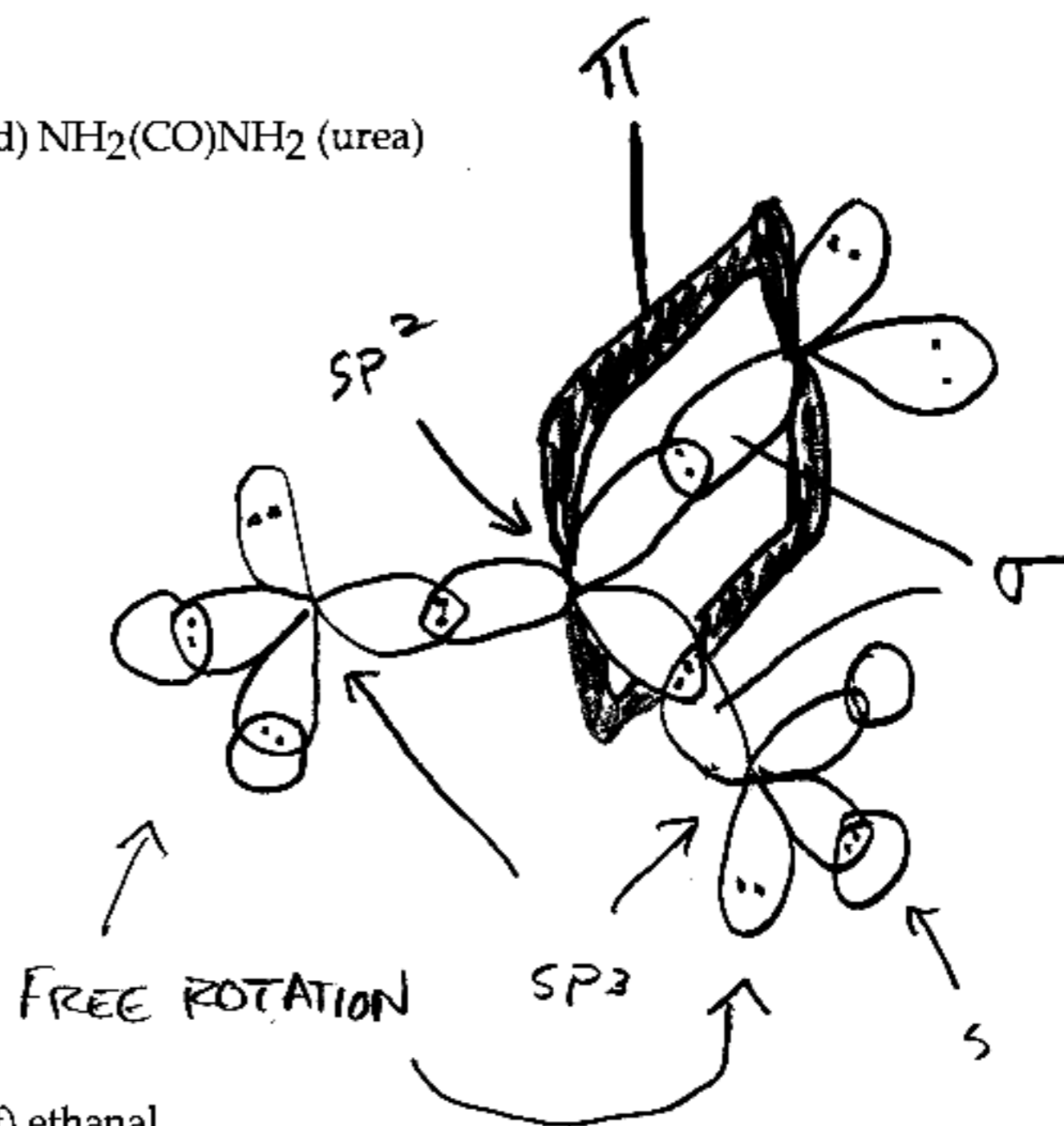
b) NH_3



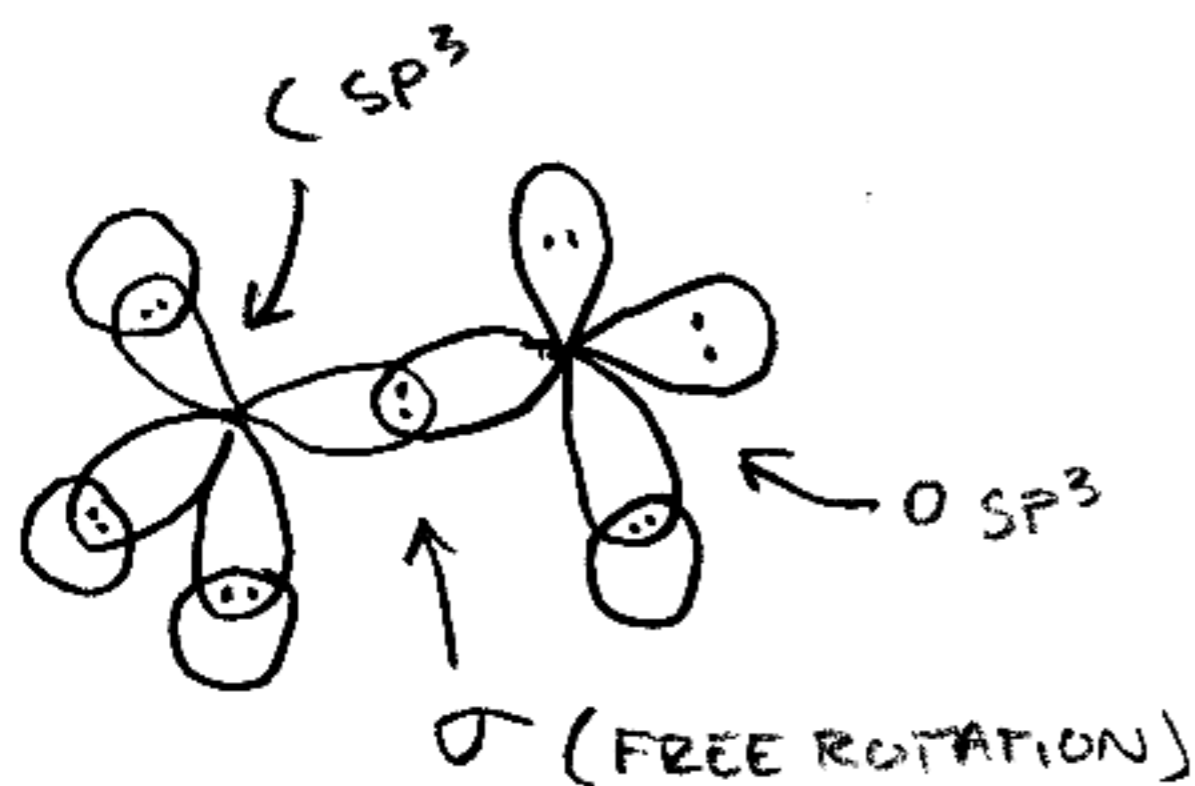
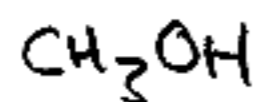
c) CO_2



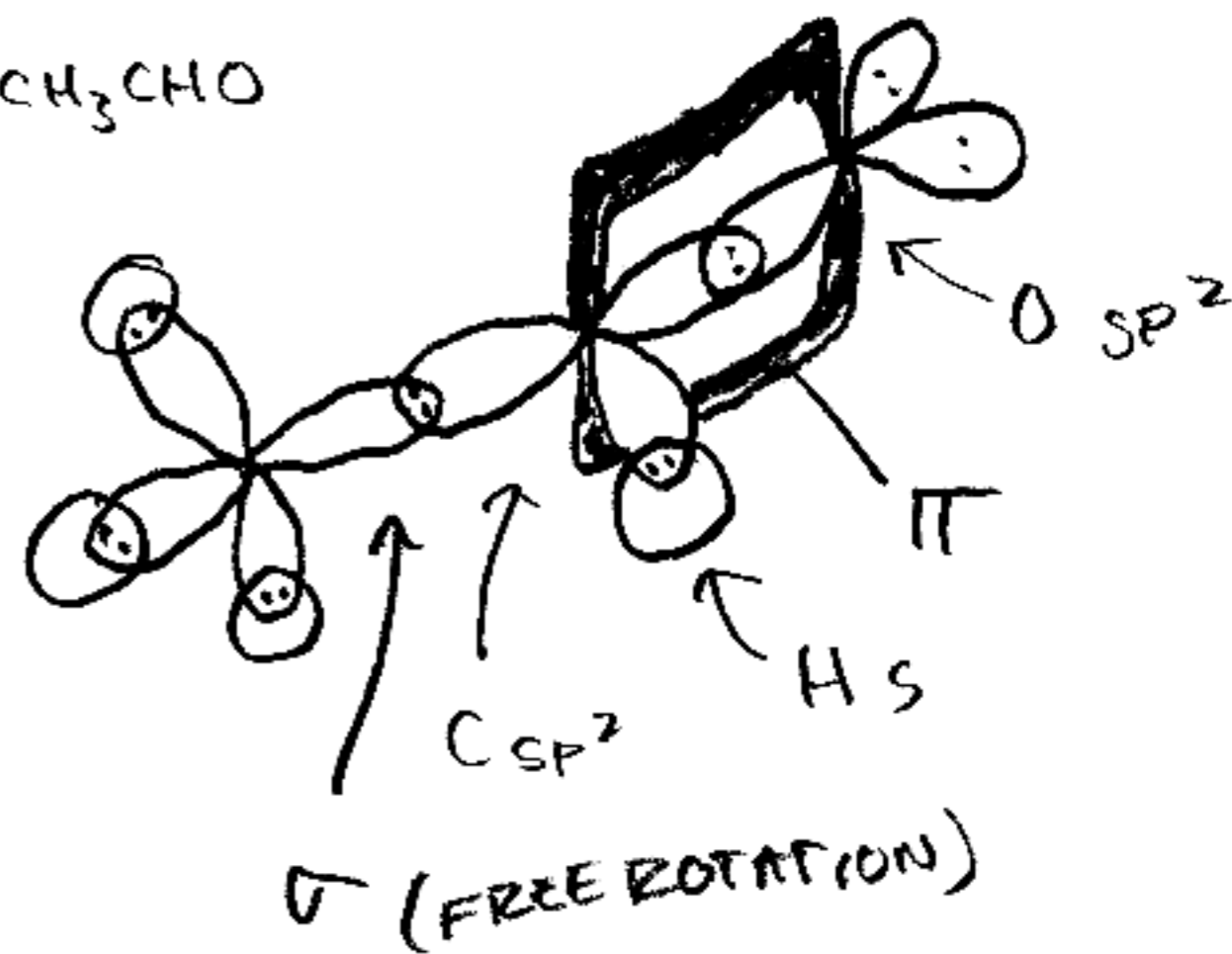
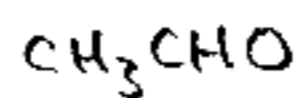
d) $NH_2(CO)NH_2$ (urea)



e) methanol



f) ethanal



2) Label the hybridization of the indicated atoms on the molecule shown here - thiamine pyrophosphate. (notice: many implicit hydrogens and lone pairs are omitted)

