

CHEM 432 Practice Exam. The actual exam will have about 5 more problems on it.

(1) For the following molecules (a) draw the correct Lewis Dot Structures. (b) Draw the correct VSEPR structures with bond angles and indicating deviations from ideality.

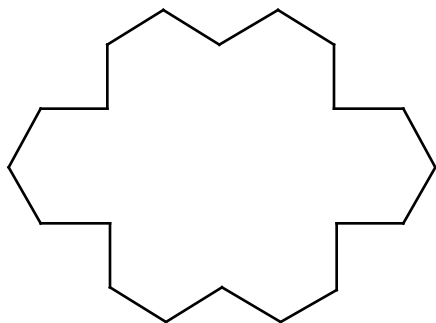
(a) XeF_4

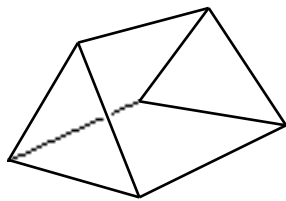
(b) SI_4

(c) PF_6^-

(d) SiH_4

(2) List the symmetry elements and point group for the following





(b)

(3) Explain the bonding between Ru^{2+} and the ligands NH_3 and C_2H_2 . How is the bonding different in the two cases?

(4) What factors are involved in the rates of ligand substitution in transition metal complexes?

(5) What is the trans effect? What makes a ligand a strong trans directing ligand?

(6) Write the term symbols for the ground state electron configuration of the following ions.

(7) Explain in detail, what happens when oxygen binds to myoglobin. What is the relationship between myoglobin and hemoglobin (refer to binding constants).

(8) What factors are involved in the rate of outer sphere electron transfer reactions (hint: break this up into self-reactions and non-self-reactions).