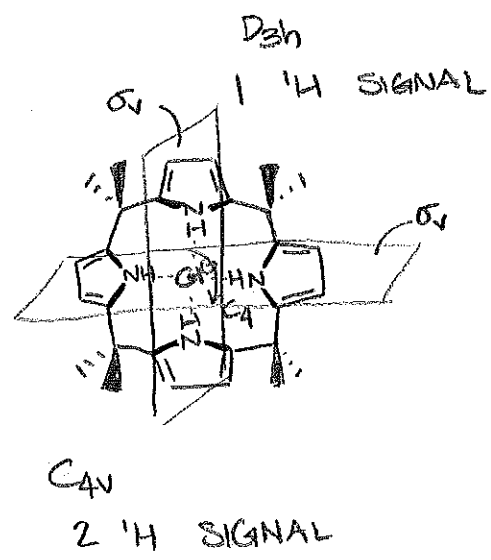
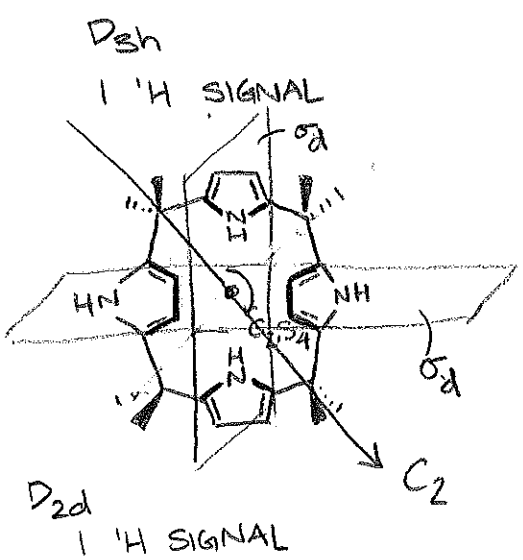
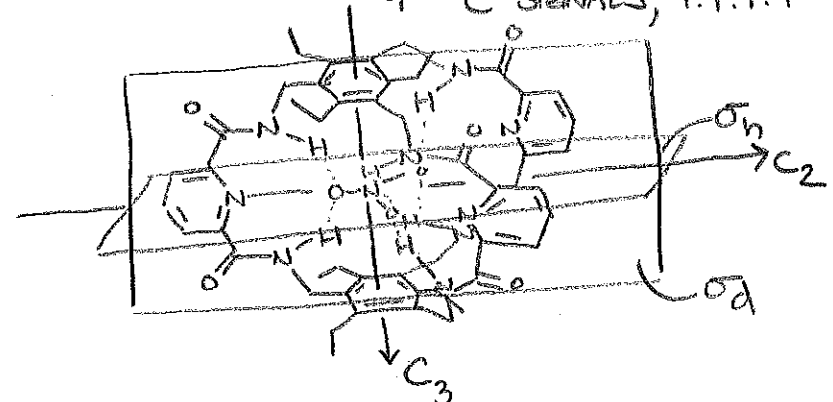
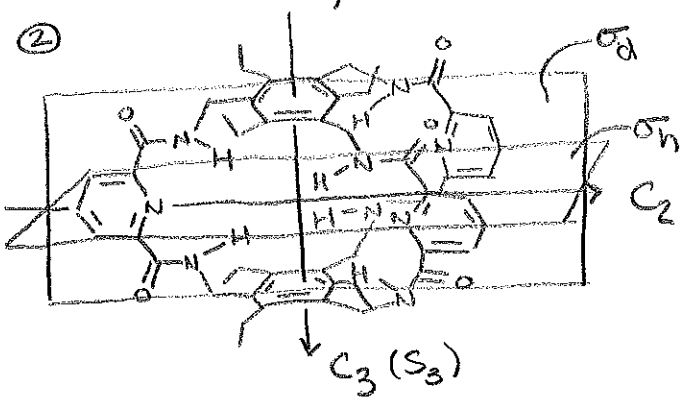
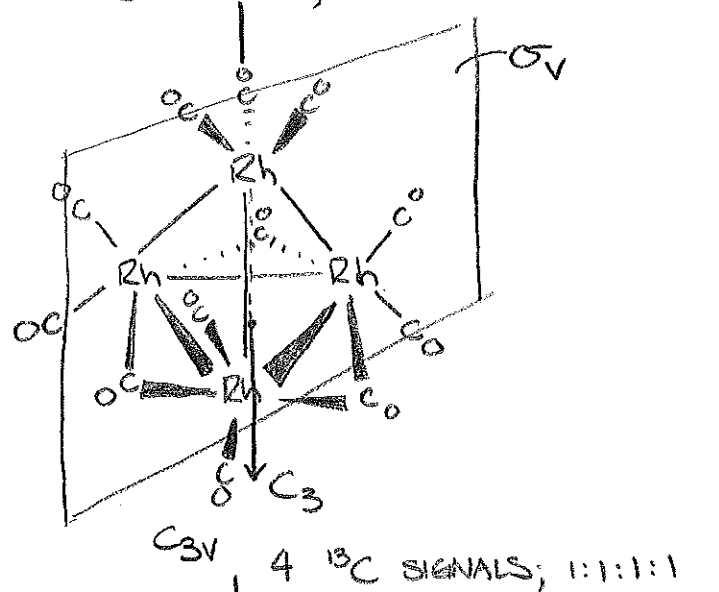
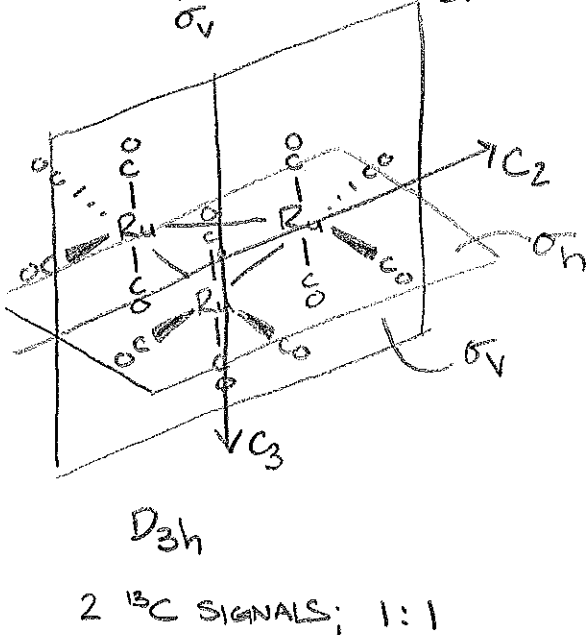
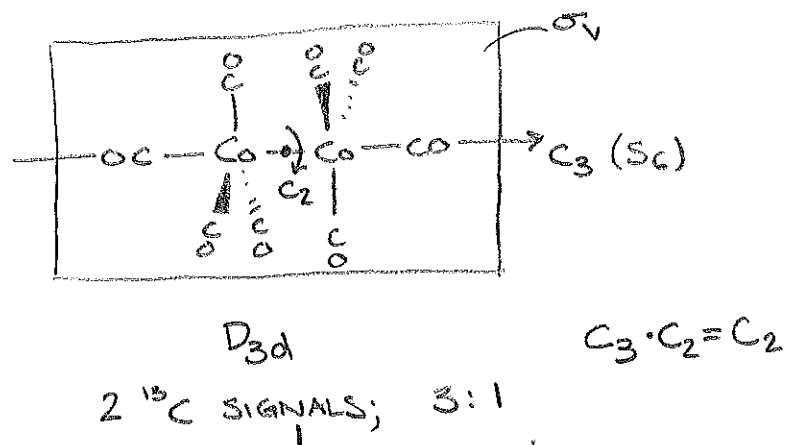
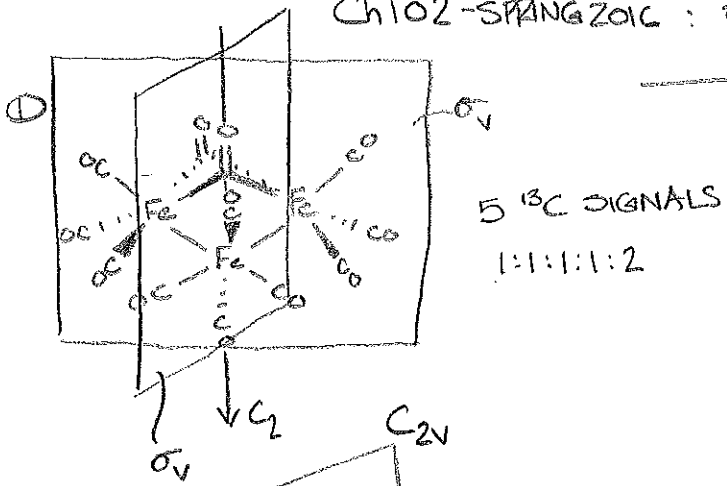
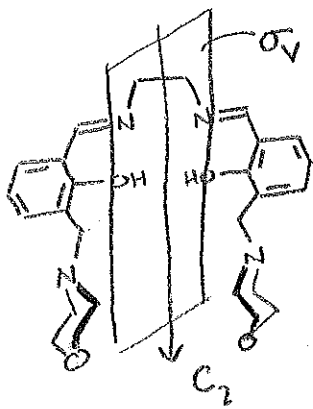
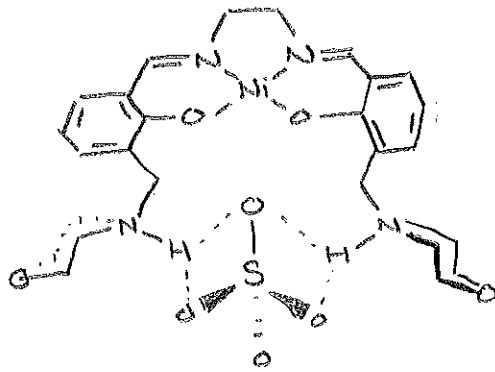


Ch102-SPRING 2016 : PROBLEM SET # 1 ANSWER KEY



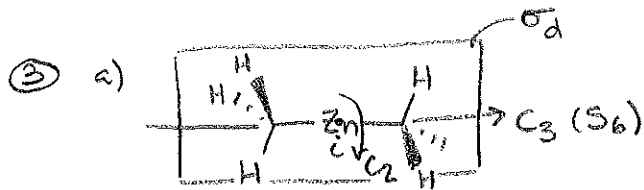


$C_{2v}$   
1  $^1H$  SIGNAL

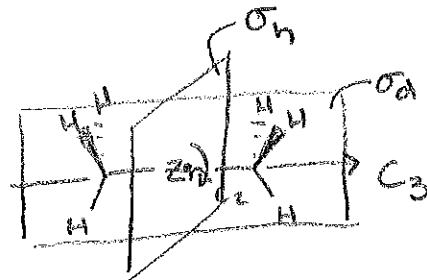


$C_1$   
4  $^1H$  SIGNALS

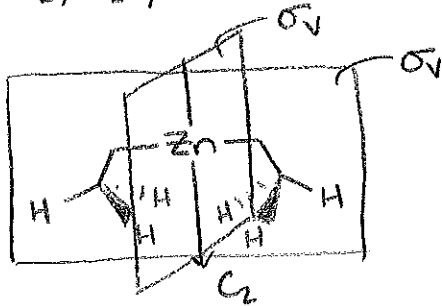
c)  $D_5$ ;  $C_1$



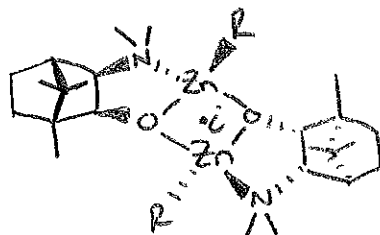
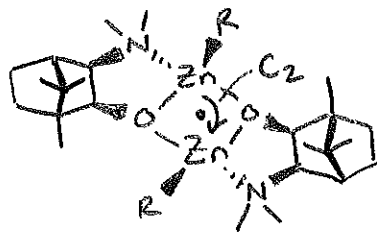
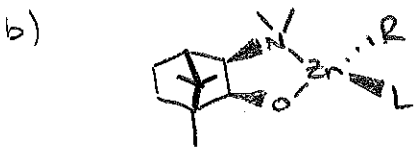
$D_{3d}$   
 $E, C_3, C_3^2, 3 \perp C_2, 3 \sigma_d, S_6, S_6^5, i$



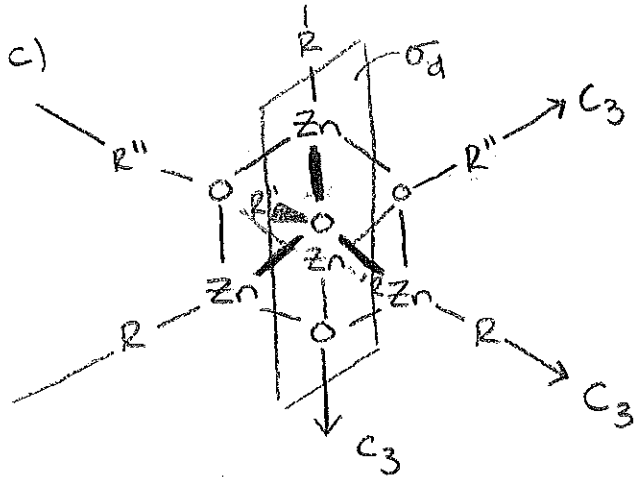
$D_{3h}$   
 $E, C_3, C_3^2, 3 \perp C_2, 3 \sigma_d, \sigma_h, S_3, S_3^2$



$C_{2v}$   $E, C_2, 2 \sigma_v$



$i$  - PRECLUDES CHIRALITY

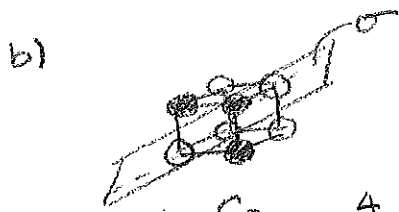
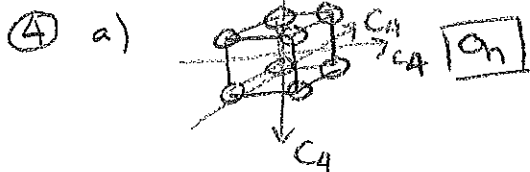
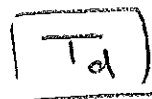


4  $C_3$

AXES

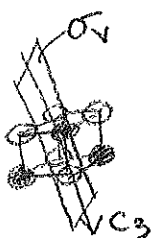
$\sigma$

PRESENT



$C_s$   
 $E, \sigma$

4  $^1H$   
6  $^{13}C$   
2  $^{19}F$



$C_{3v}$

$E, C_3, C_3^2, 3\sigma_v$

3  $^1H$   
4  $^{13}C$   
1  $^{19}F$

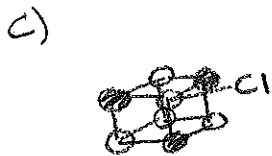


$C_5$

$E, \sigma$

3  $^1H$   
6  $^{13}C$   
3  $^{19}F$

NONE ARE CHIRAL, ALL POSSESS A  $\sigma$  PLANE



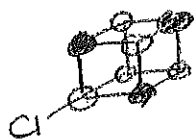
$C_{3v}$

2  $^1H$   
4  $^{13}C$   
1  $^{19}F$



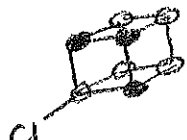
$C_{3v}$

2  $^1H$   
4  $^{13}C$   
1  $^{19}F$



$C_5$

3  $^1H$   
6  $^{13}C$   
2  $^{19}F$



$C_5$

3  $^1H$   
6  $^{13}C$   
2  $^{19}F$



$C_5$

3  $^1H$   
6  $^{13}C$   
2  $^{19}F$



$C_5$

3  $^1H$   
6  $^{13}C$   
2  $^{19}F$



$C_5$

2  $^1H$   
6  $^{13}C$   
3  $^{19}F$

