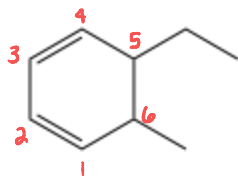
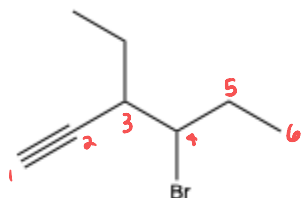


CHEM 2300 Review Exam One Solution

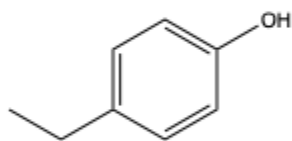
1. Name or draw the following compounds.



5-ethyl-6-methyl-1,3-cyclohexadiene



1-bromo-3-ethyl-1-hexyne

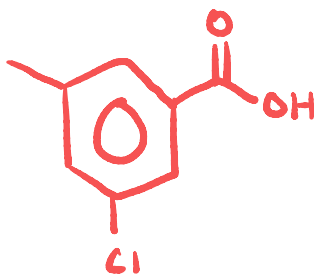


p-ethylphenol
↳ or 4

trans-2-methylhex-3-ene



3-chloro-5-methylbenzoic acid

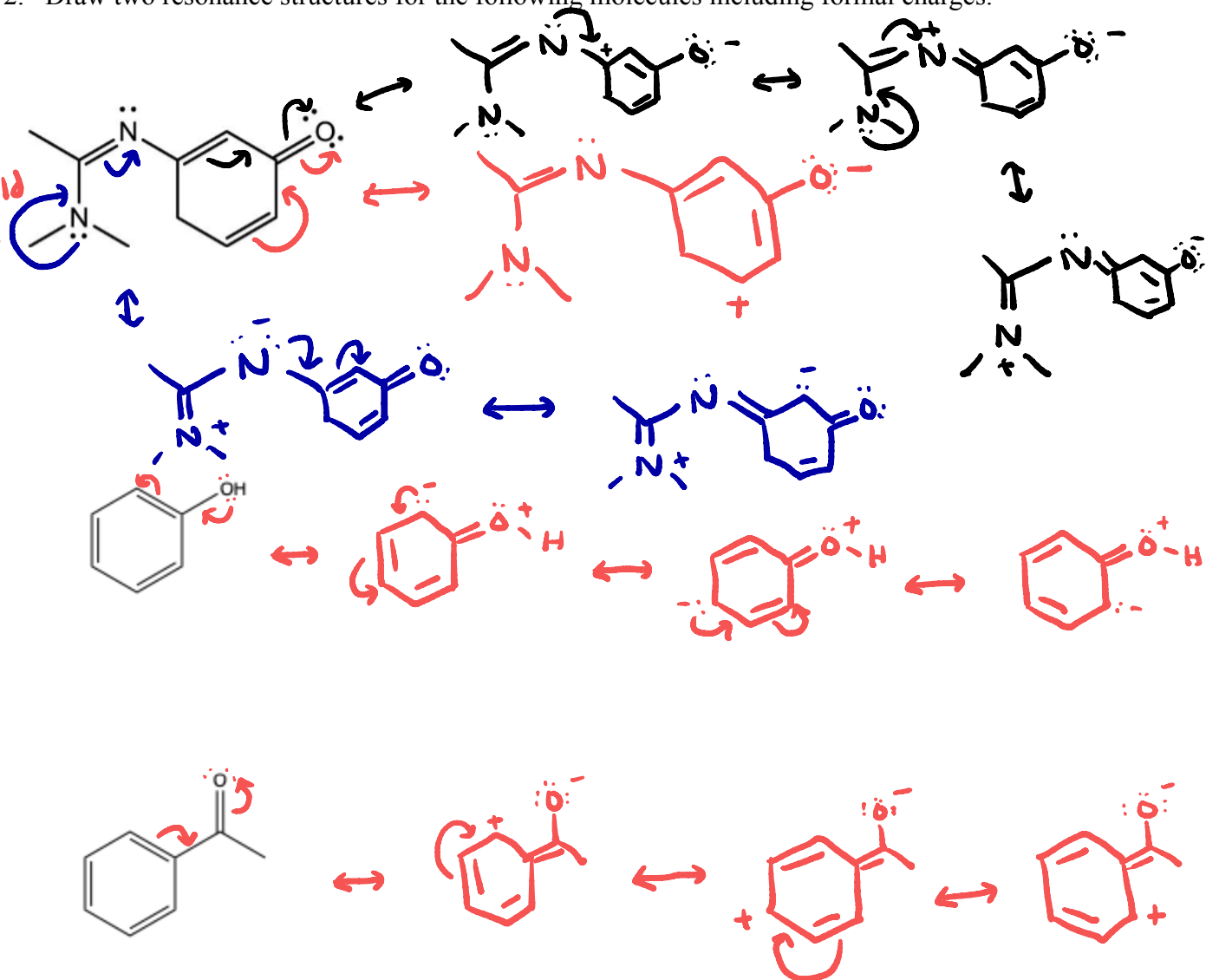


cis-pent-3-en-1-yne



2. Draw two resonance structures for the following molecules including formal charges.

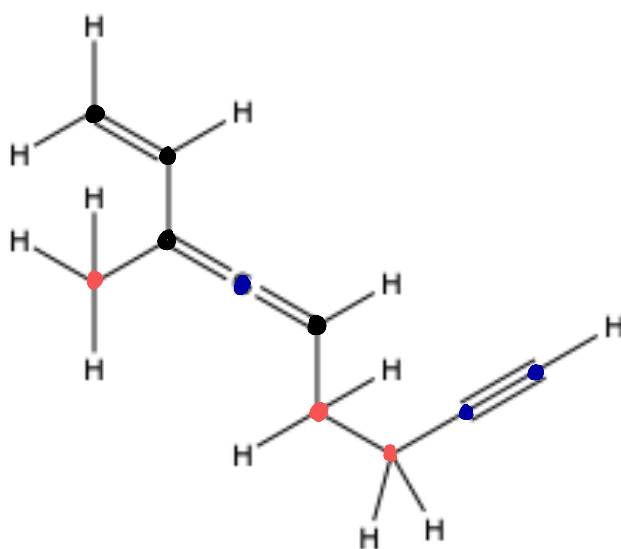
this is
some
there could
be more



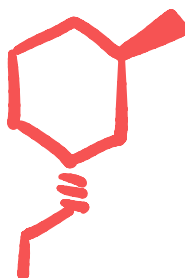
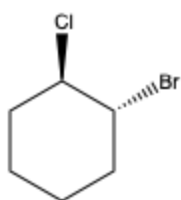
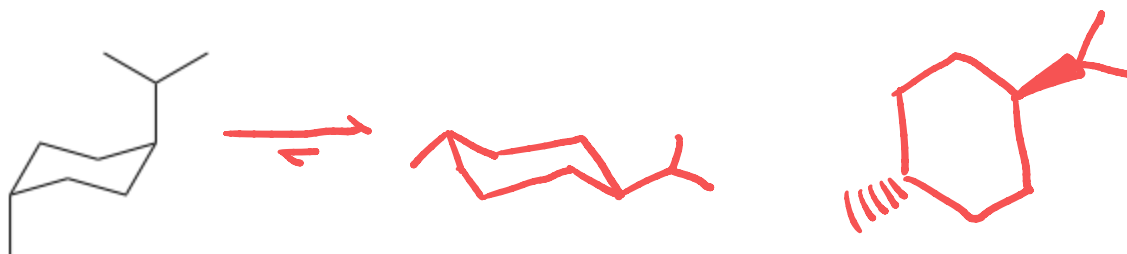
3. List the hybridization of each carbon along with the geometry. How many pi and sigma bonds are there?

$sp^3 \rightarrow$ tetrahedral
 $sp^2 \rightarrow$ trigonal planar
 $sp \rightarrow$ linear

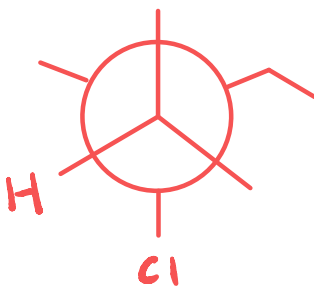
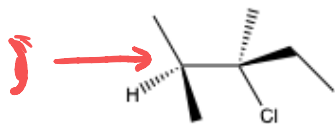
21 σ 5 π

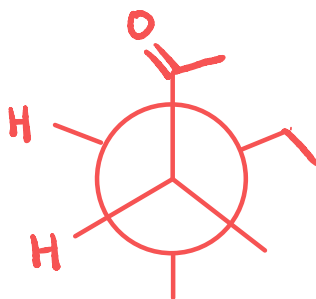
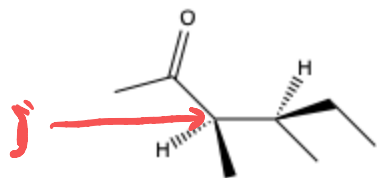
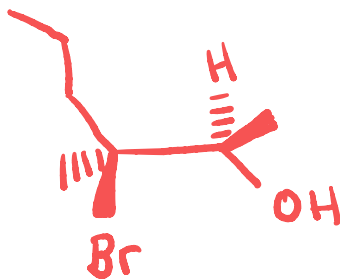
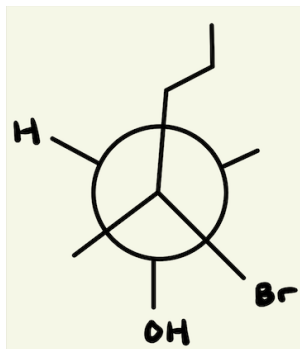


4. Draw either the flat drawing or the chair drawing for the following cyclohexane molecules. Are the chair drawings in their most stable conformation? If not, draw them in their more stable conformation (even the ones I gave you might not be in their most stable form).



5. Draw either the Newman projection or the wedge-dash for each of the following.





6. Draw a plausible initiation, propagation, and termination mechanism for the monobromination of 2-methylpropane. How many major products (excluding byproducts) are possible?

I did not put all lone pairs but they would still be there



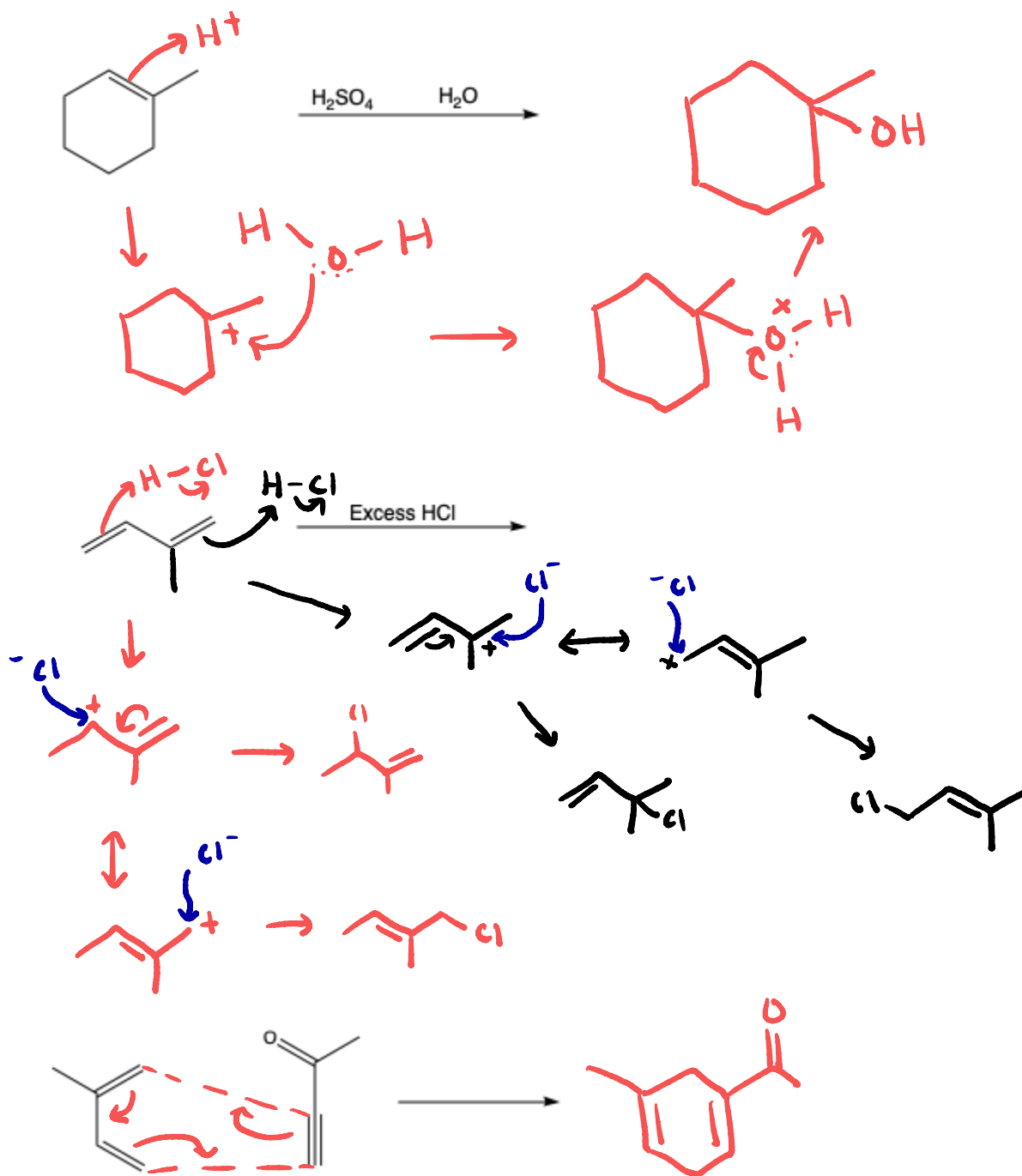
T:

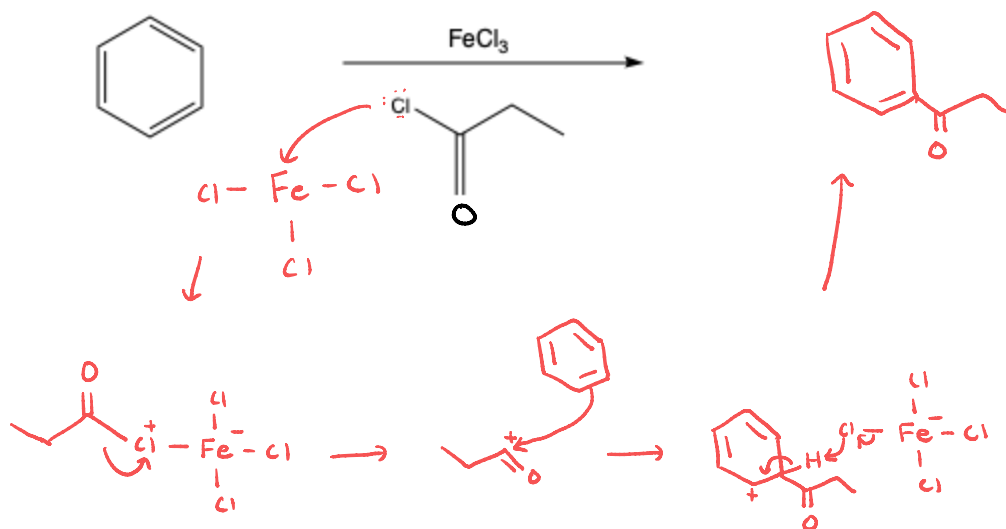


2 possible products $\text{CH}_3\text{C}(\text{CH}_3)_2\text{Br}$ or $\text{CH}_3\text{C}(\text{CH}_3)(\text{CH}_2)_2\text{Br}$

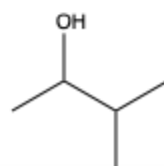
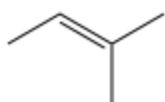
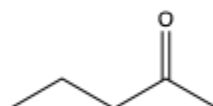
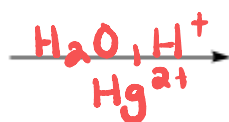
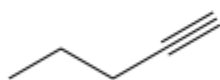
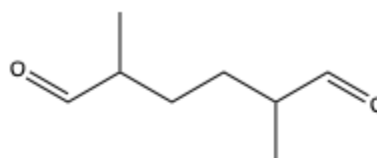
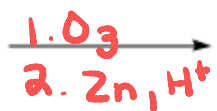
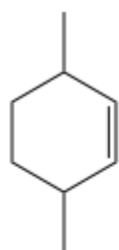
this would have the same mechanism

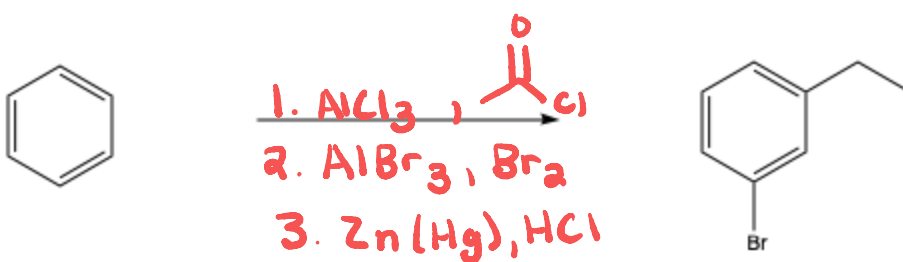
7. Draw the mechanism and major product(s) for the following reactions. Include formation of strong electrophile if necessary.





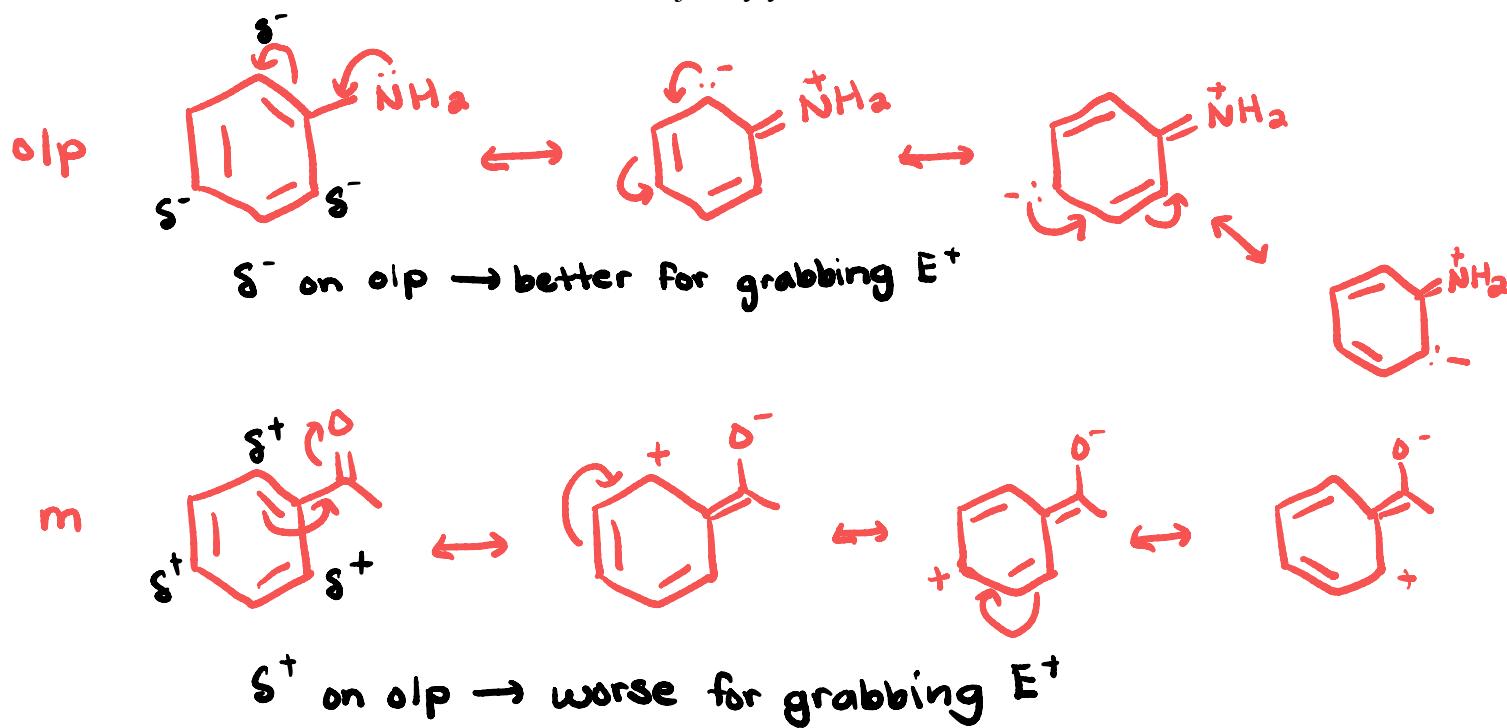
8. Give reagents to get the desired products. If multiple steps are needed, indicate by which one is first, second, and so on.



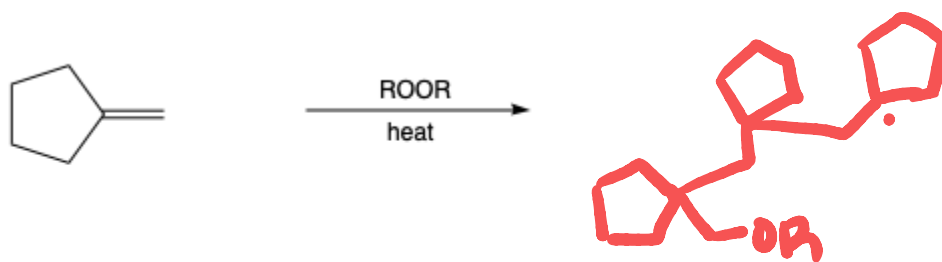


9. Draw the mechanism of naphthalene reacting with sulfuric acid and SO_3 . Why is one product favored over the other?
-
- if you do resonance structures there's more with this than the product

10. Why are meta directors meta directors and why are ortho/para directors ortho/para directors? Draw resonance structures to justify your answer.



11. Draw the trimer product of this reaction. What is this reaction called?



polymerization reaction