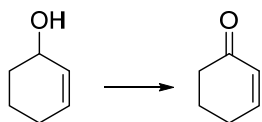


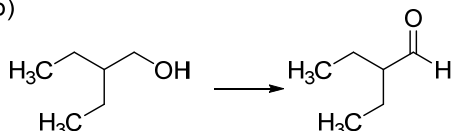
1. OXIDATION

1. For each structure write down the corresponding molecular formula. In the following examples, indicate the parts of molecules that are chemically transformed and use oxidation numbers to select formal oxidations and reductions. If needed, you can use the averaged oxidation numbers discussed in MS1.

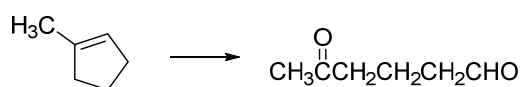
a)



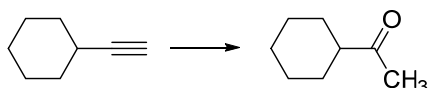
b)



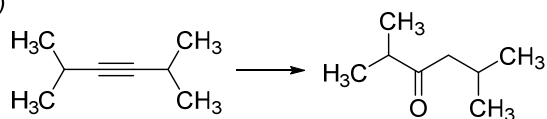
c)



d)



e)



2. Fill in the table below, summarizing properties of selected Cr^{VI} oxidants.

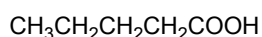
oxidant (name, composition)	application	properties	limitations/advantages
Jones reagent			
Collins reagent			
PCC (Corey)			
PDC (Cornforth)			

3. Indicate the best method(s) to obtain the following compounds from the corresponding alcohols. Justify your choice for each example (VS17).

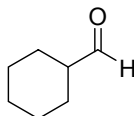
a)



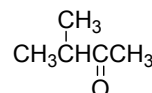
b)



c)



d)

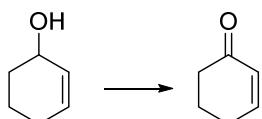


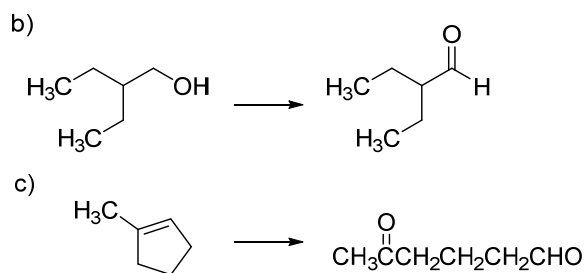
e)



4. Indicate the reagent (or reagent system) most suitable for carrying out the oxidation reactions shown below (VS17).

a)



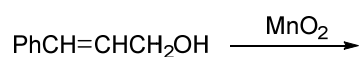


5. Explain abbreviations listed in the table below.

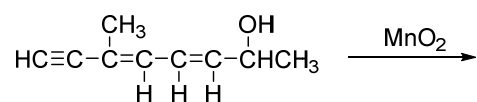
Abbreviation	Name	Formula/Composition	Reduction product(s) (for oxidants)
DME			
DMP			
DMS			
DMSO			
IBX			
KHMDS			
MCPBA			
NBS			
NCS			
NMO			
OTBS			
Oxone [®]			
PCC			
PDC			
TEMPO			
TPAP			

6. Predict products of the following reactions (CS3).

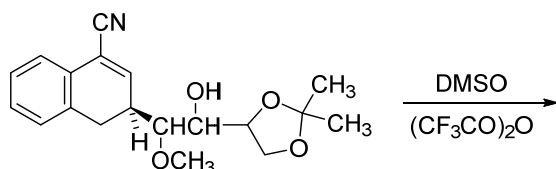
a)



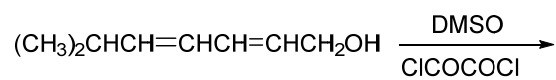
b)



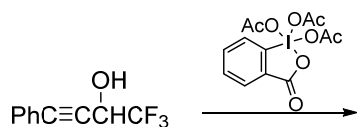
c)



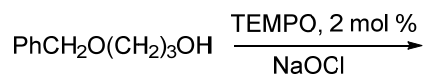
d)



e)

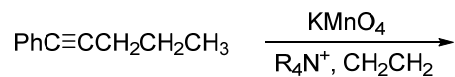


f)

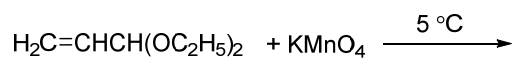


7. Predict products of the following reactions involving double and triple bonds (CS3).

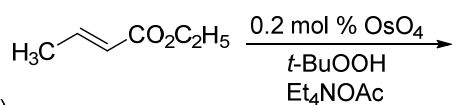
a)



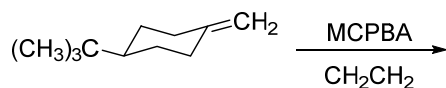
b)



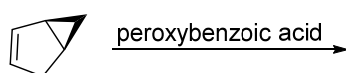
c)



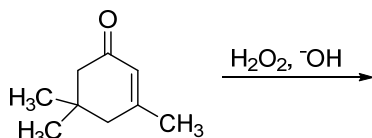
d)



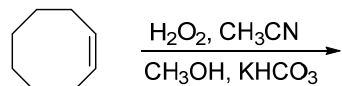
e)



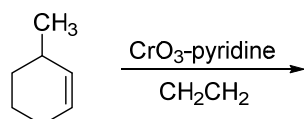
f)



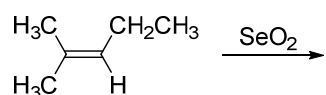
g)



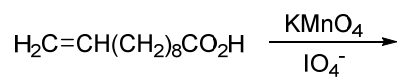
h)



i)

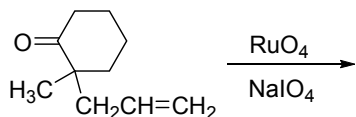


j)

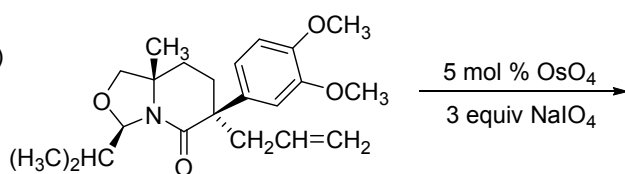


8. Predict products of the following reactions (CS3).

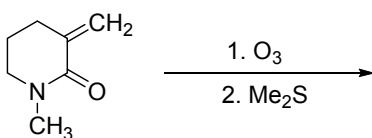
a)



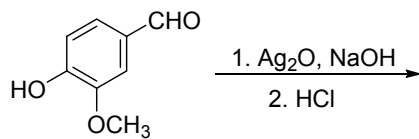
b)



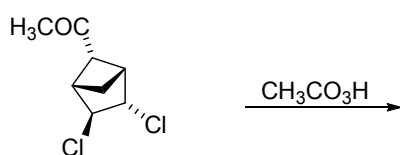
c)



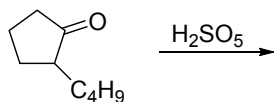
d)



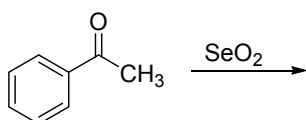
e)

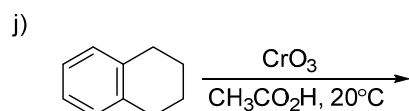
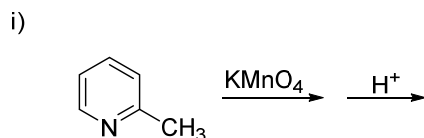
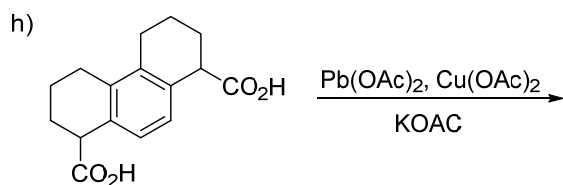


f)



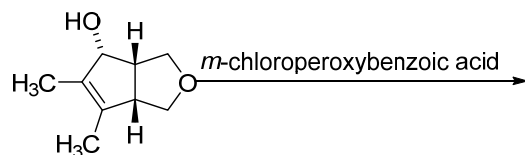
g)





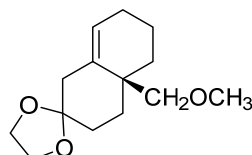
9. On the basis of the reference, provide the product of the following reaction.

R. M. Scarborough, Jr., B. H. Toder, and A. B. Smith, III, *J. Am. Chem. Soc.*, **1980**, *102*, 3904.



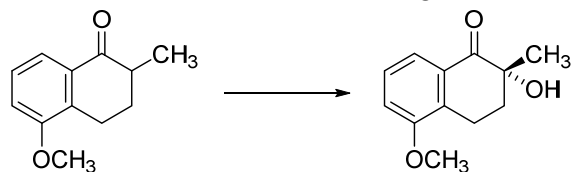
10. Predict product(s) of the reaction with Collins reagent for compound below using:

T. Kawabata, P. Grieco, H.-L. Sham, H. Kim, J. Y. Jaw, and S. Tu, *J. Org. Chem.*, **1987**, *52*, 3346.



11. On the basis of the reference, provide the conditions of the following reaction.

Davis, F. A., Weismiller, M. C., *J. Org. Chem.*, **1990**, *55*, 3715.



12. Discuss the method described in *J. Chem. Educ.*, **2010**, *87*, 1351 and present a few examples of its use.