

Name _____

page

possible points:

2 _____ (25)

3 _____ (16)

4 _____ (18)

5 _____ (31)

6 _____ (10)

Total _____ (100)

Periodic Table

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Ha	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac															

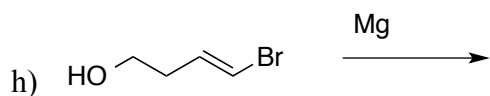
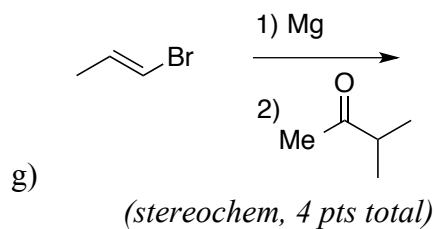
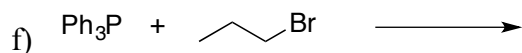
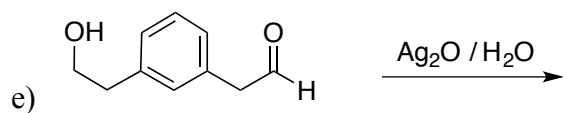
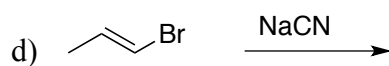
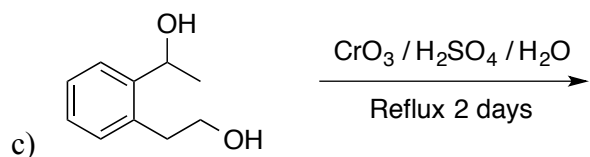
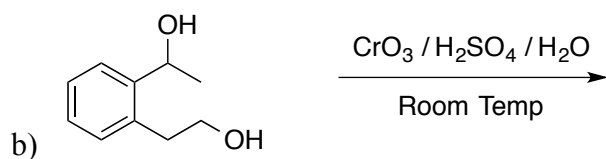
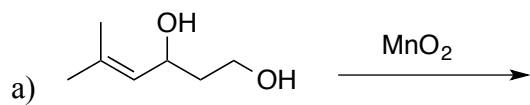
Please sit with an empty seat between you and your neighbors.

Unless specifically asked, you do not have to draw mechanisms for reactions.

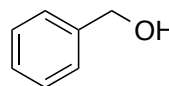
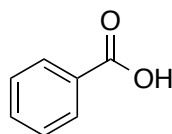
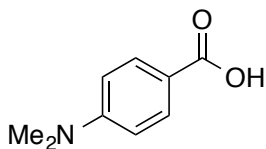
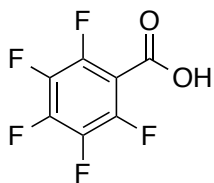
Feel free to ask questions about the questions, but please don't ask questions about your answers, it distracts your neighbors.

If you are caught cheating or helping anyone cheat or otherwise violating the Honor Code , you will be referred to the Honor Code Council and if found in violation, you will receive an academic sanction up to an F in the class. I don't take Honor Code Violations lightly, so DON'T CHEAT (please)!

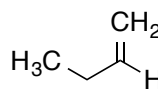
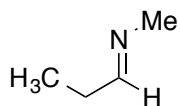
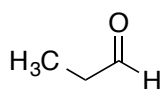
1) Provide the products of the following reactions (all reactions have an appropriate aqueous work up). If no reaction would occur, write NR. If a reaction would produce stereoisomers, draw the isomers and indicate if they will be produced in equal or unequal amounts (3 pts each, except "g" is 4 pts).



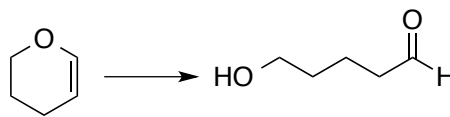
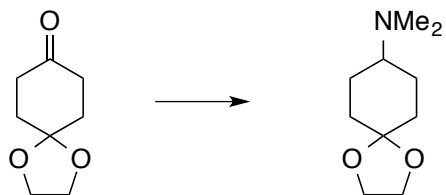
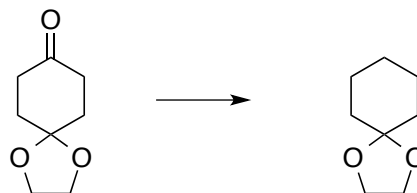
2) Rank the following compounds from most acidic (1) to least acidic (4) (4 pts total).



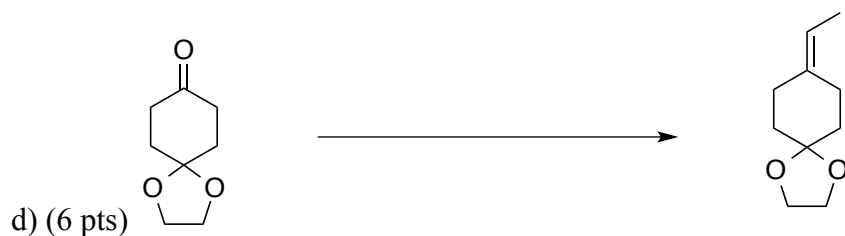
3) Rank the molecules shown below with respect to the energy of π^* (lowest energy $\pi^* = 1$, highest energy $\pi^* = 4$) (4 pts total).



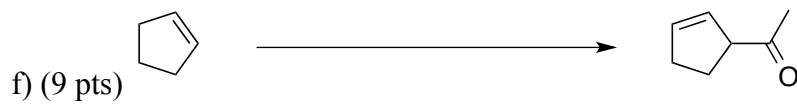
4) Are the following transformations oxidations, reductions, or neither? (8 pts)



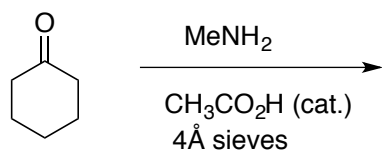
5) Complete the following syntheses using any organic molecule of 6 carbons or less, and any inorganic reagents you need. Provide the reagents and any relevant conditions but you do not have to show the synthesis of the 6-carbon or less molecule you use. You may also use triphenyl phosphine (i.e., Ph_3P). If your synthesis requires more than one step, **you must provide the product after each step**. All chiral products are racemic mixtures and you do not need to show mechanisms.



5) continued.



6) Provide the product and mechanism for the reaction shown below. Show every intermediate with the proper charges and all arrows required for each step, including any workup steps (13 pts).



7) Provide the mechanism for the reaction shown below. Show every intermediate with the proper charges and all arrows required for each step, including any workup steps (10 pts).

