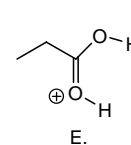
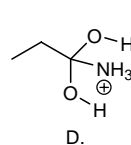
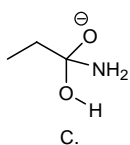
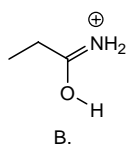
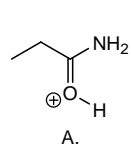
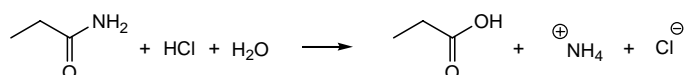


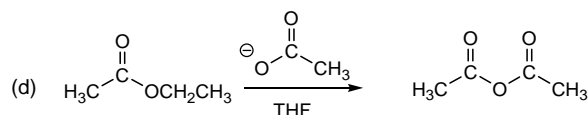
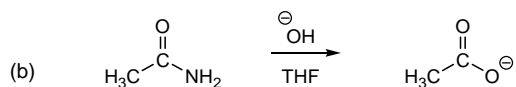
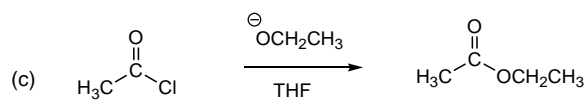
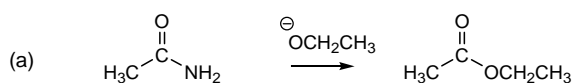
QUEST	Form 0
1	C
2	E
3	B
4	D
5	B
6	D
7	B
8	C
9	D
10	B
11	A
12	E

### Multiple Choice Questions. 60 points

1. Choose the species that does *not* represent an intermediate in the acid catalyzed hydrolysis of propionamide to the carboxylic acid.

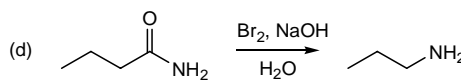
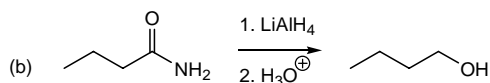
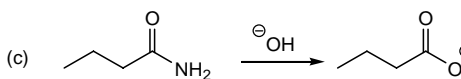
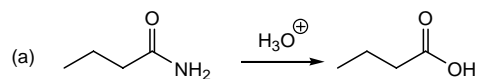


2. Choose the reaction(s) that *will not* proceed as shown.



- A. Only (a)      B. Only (b)      C. Only (c)      D. Only (d)      E. Both (a) and (d).

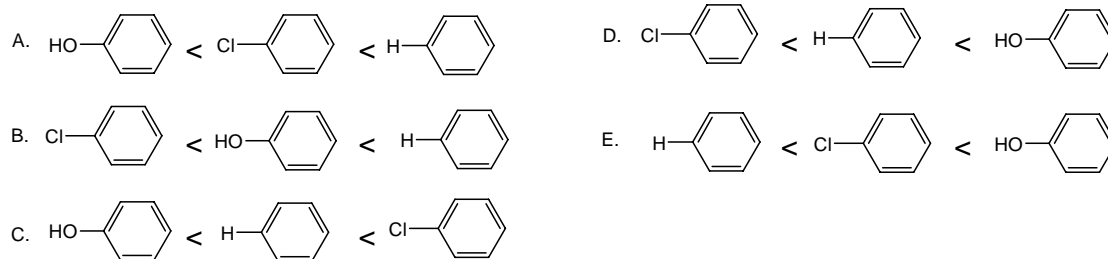
3. Choose the reaction(s) that *will not* proceed as shown.



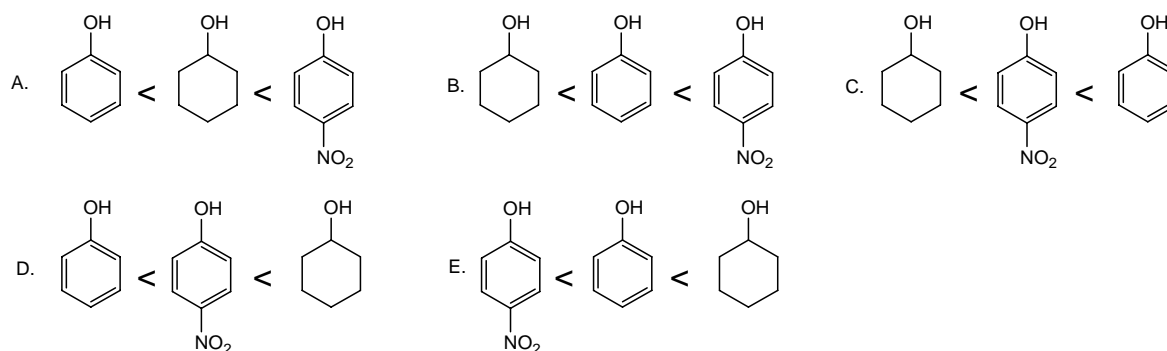
Form 0

- A. Only (a)      B. Only (b)      C. Only (c)      D. Only (d)      E. Both (c) and (d).

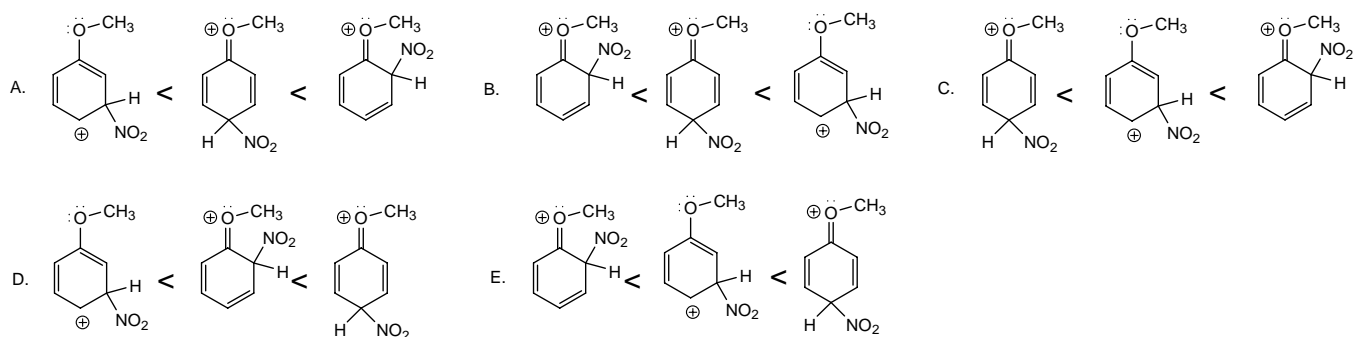
4. Choose the order that has the following aromatic compounds correctly arranged with respect to increasing reactivity towards  $\text{Br}_2/\text{FeBr}_3$ .



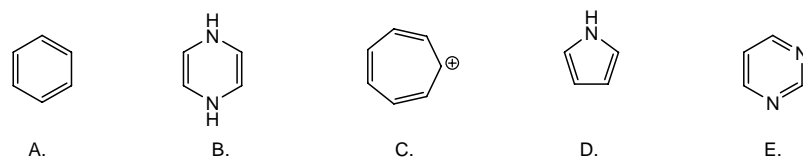
5. Choose the order that has the following alcohols correctly arranged with respect to increasing acidity.



6. Choose the order that has the following species arranged correctly with respect to *increasing* stability.

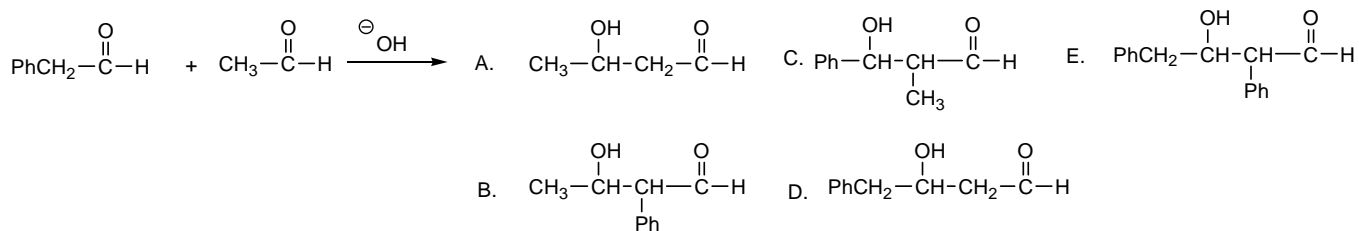


7. Select the compound that would be predicted *not* to be aromatic.

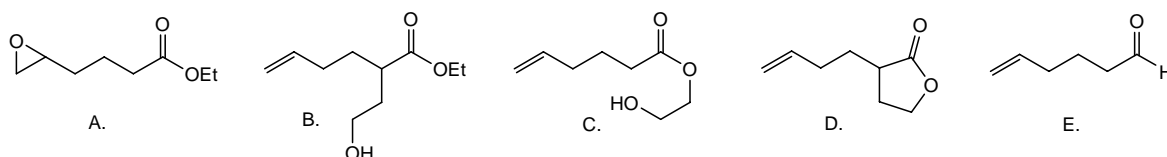
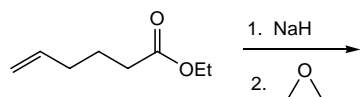


## Form 0

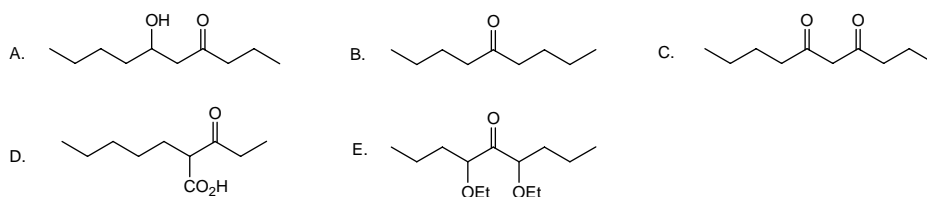
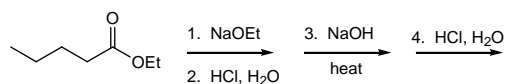
8. Choose the species that would be predicted to be *not* produced in the following aldol reaction.



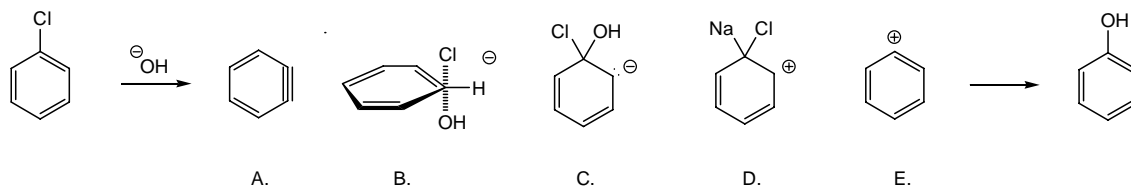
9. Predict the major product of the following reaction.



10. Predict the major product of the following reaction sequence.

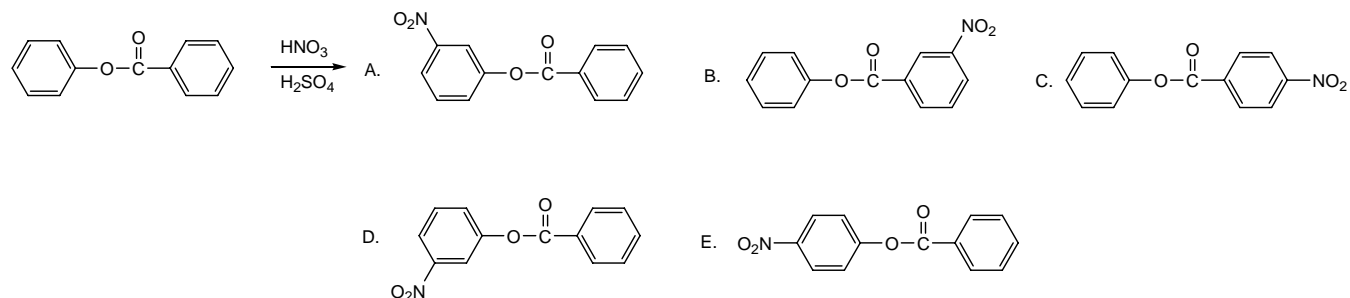


11. Choose the proposed intermediate in the following reaction.



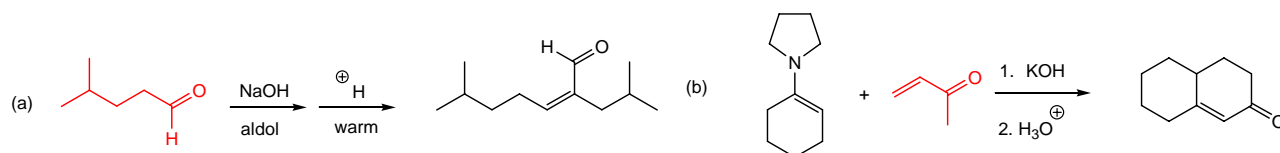
## Form 0

12. Predict the major product of the following reaction sequence.

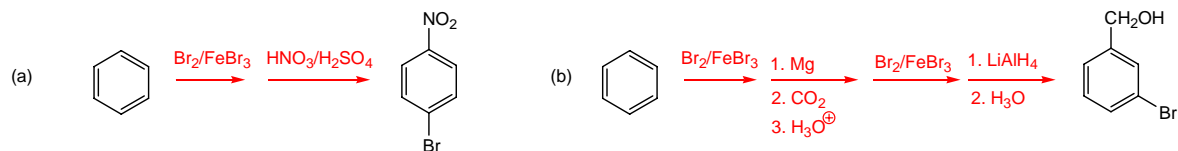


### Short Answer Questions. 40 points.

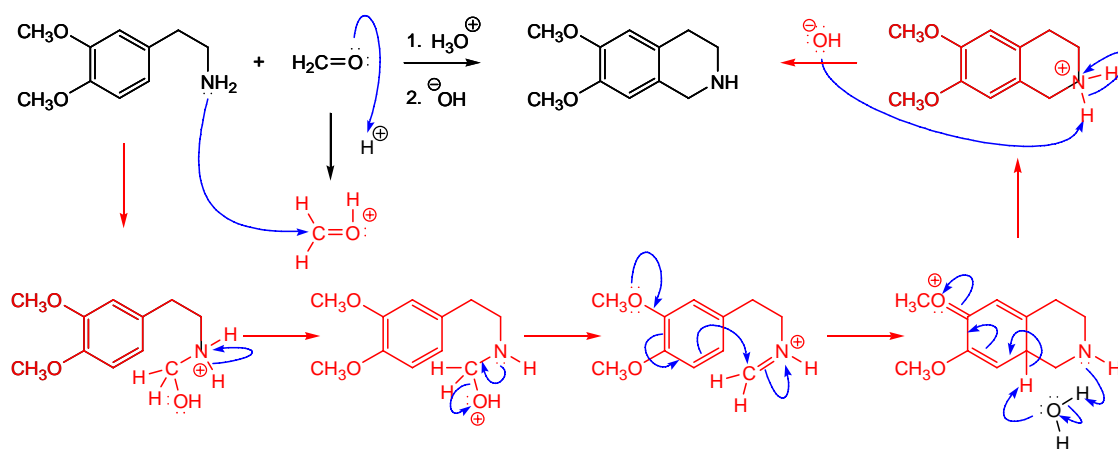
13. Give the missing reactants that would lead to the indicated product in the following reactions.



14. Starting with benzene give reactants and reagents that would produce the product shown (more than one step may be necessary).



15. Using the curved arrow formalism show the bond making and bond breaking steps involved in the following reaction



16. Propose a synthesis of the following compound from benzene and any reactants containing four carbon atoms or less.

# Form 0

