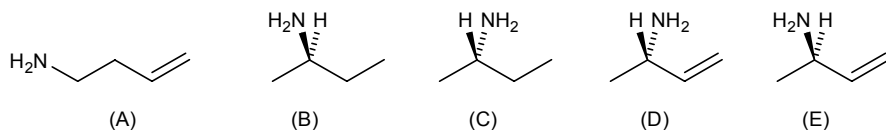
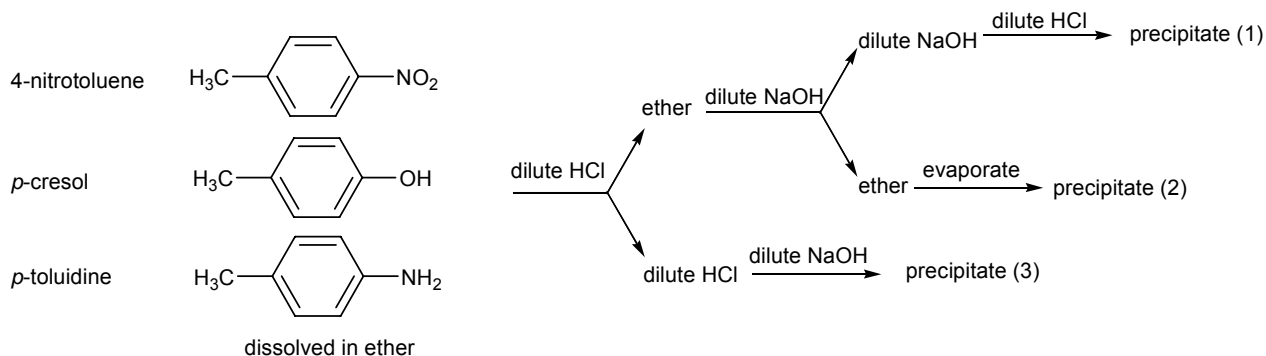


Multiple Choice Questions. 60 points Select the best answer to each of the questions.

1. Choose the correct structure for (*R*)-2-butanamine. (23.16)



2. Choose the answer that has the following compounds located correctly in the separation scheme. (23.32)



(A) 1 = 4-nitrotoluene, 2 = *p*-cresol, 3 = *p*-toluidine

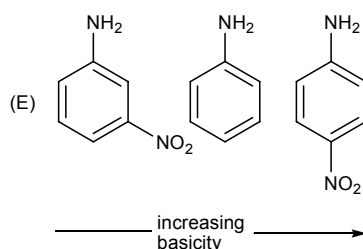
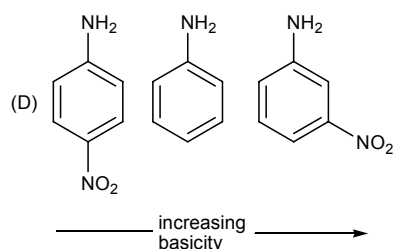
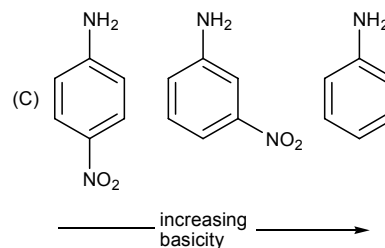
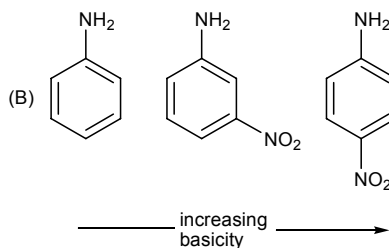
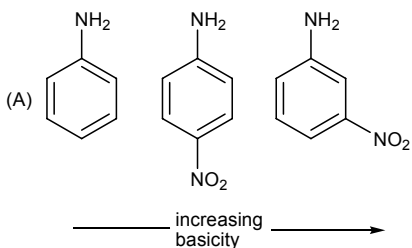
(B) 1 = 4-nitrotoluene, 2 = *p*-toluidine, 3 = *p*-cresol

(C) 1 = *p*-toluidine, 2 = 4-nitrotoluene, 3 = *p*-cresol

(D) 1 = *p*-toluidine, 2 = *p*-cresol, 3 = 4-nitrotoluene

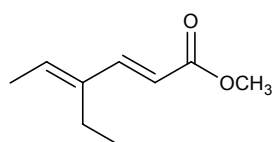
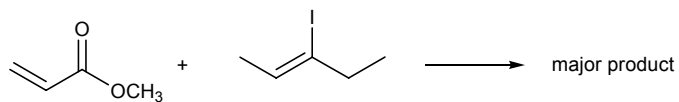
(E) 1 = *p*-cresol, 2 = 4-nitrotoluene, 3 = *p*-toluidine

3. Choose the order that has the following compounds correctly arranged with respect to increasing basicity. (WS 11)

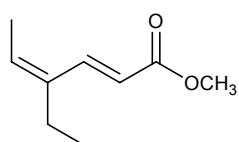


Source

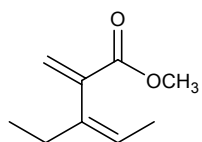
4. Choose the major product of the following reaction. (24.12)



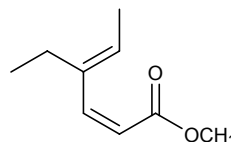
(A)



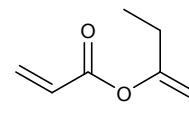
(B)



(C)

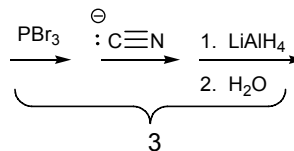
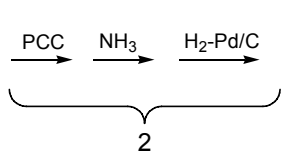
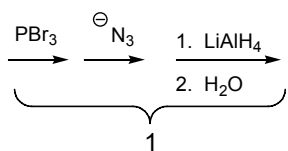
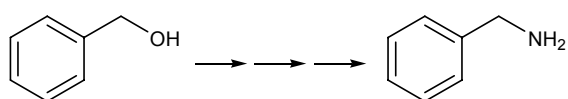


(D)



(E)

5. Choose those reactions that would give the following amine. (class quiz)



(A) 1 + 2 + 3

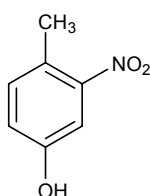
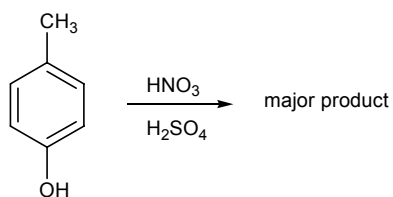
(B) 1 + 2

(C) 2 + 3

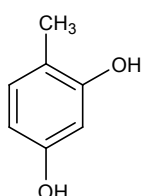
(D) 1 + 3

(E) none of these

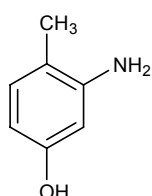
6. Choose the major product of the following reaction. (22.15)



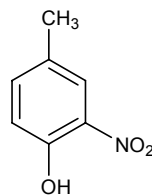
(A)



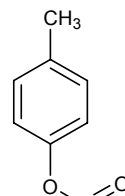
(B)



(C)



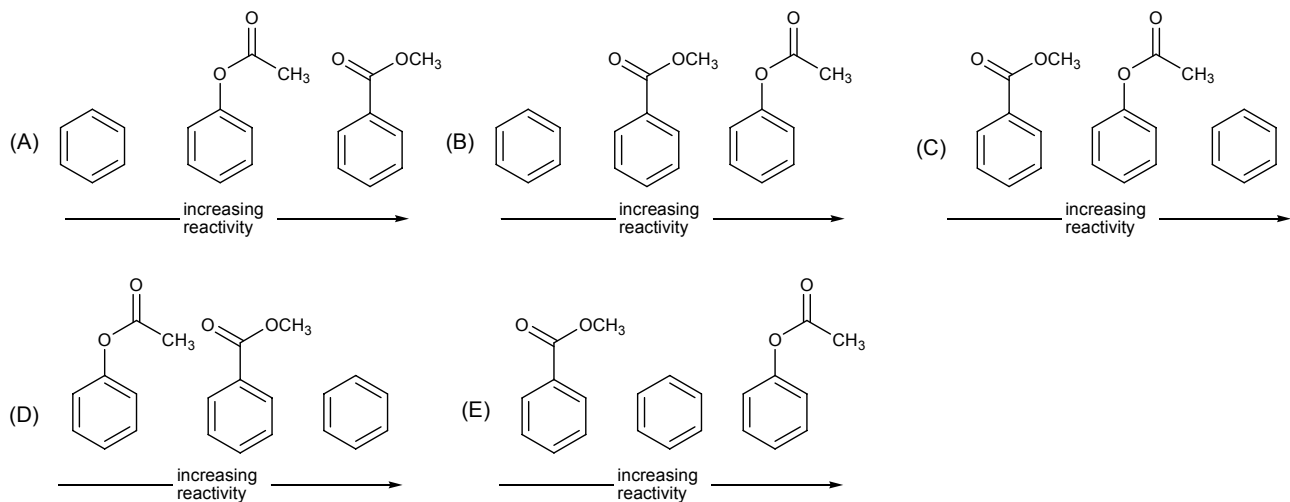
(D)



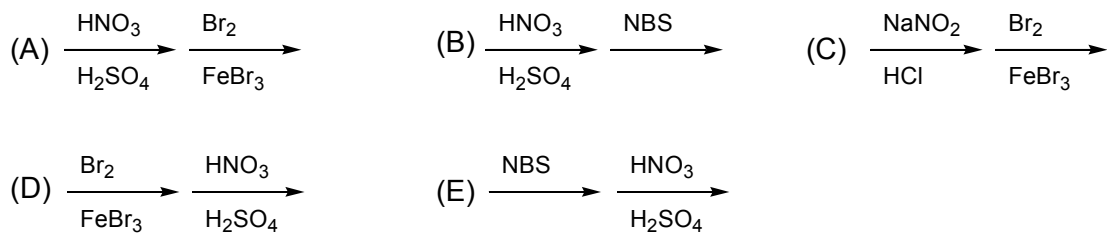
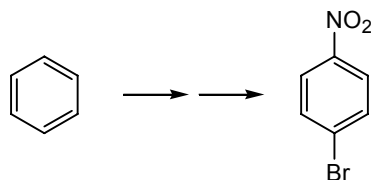
(E)

Source

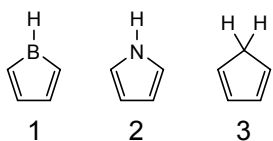
7. Choose the answer that has the following compounds arranged correctly with respect to increasing reactivity with $\text{Br}_2/\text{FeBr}_3$. (22.19)



8. Choose the reaction sequence that could be used to perform the following transformation. (class quiz)



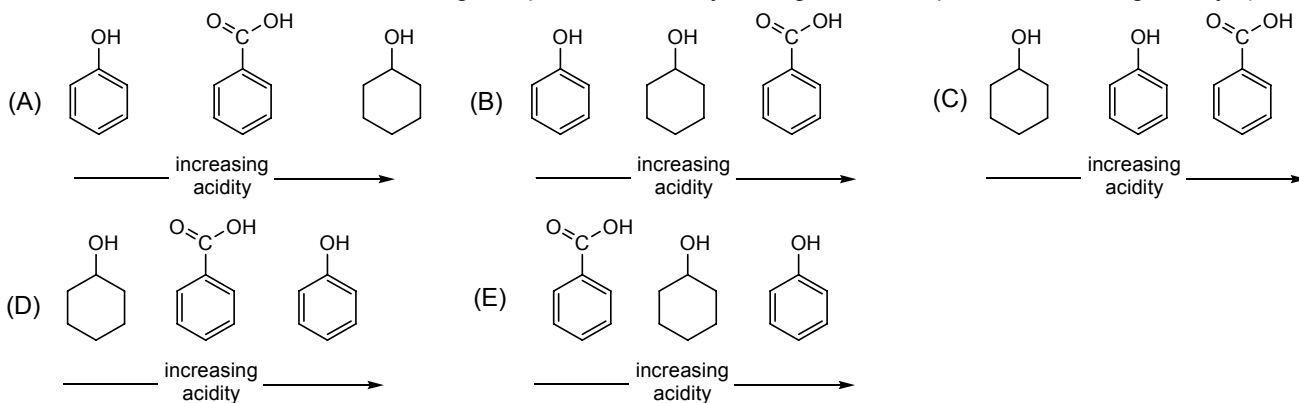
9. Choose the following species that would be predicted to be aromatic according to Hückel's rule. (21.15)



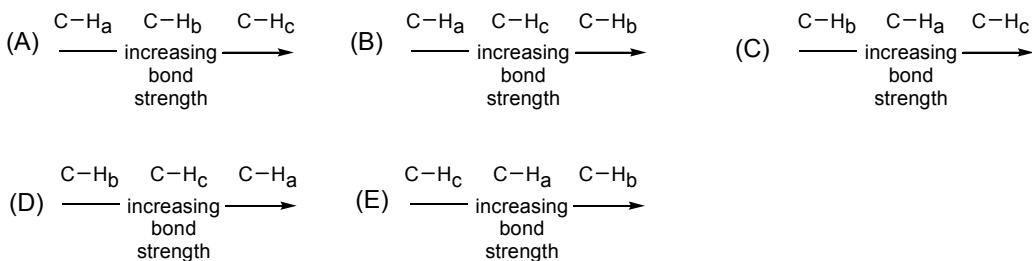
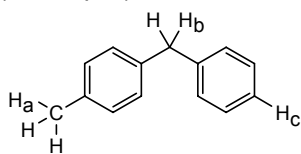
- (A) 1 (B) 2 (C) 3 (D) 1 and 2 (E) 1 and 3

Source

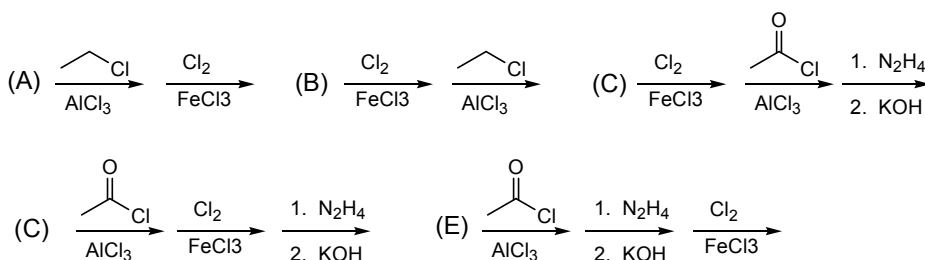
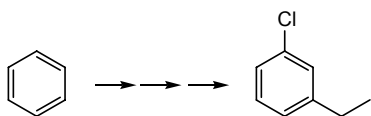
10. Choose the order that has the following compounds correctly arranged with respect to increasing acidity. (21.35)



11. Choose the order that has the following compounds correctly arranged with respect to increasing C-H bond strength. (class quiz)

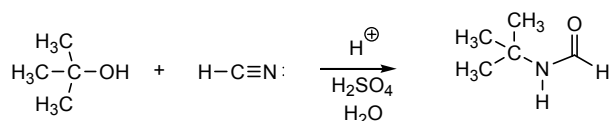


12. Choose the reaction sequence that could be used to accomplish the following transformation. (WS 10)



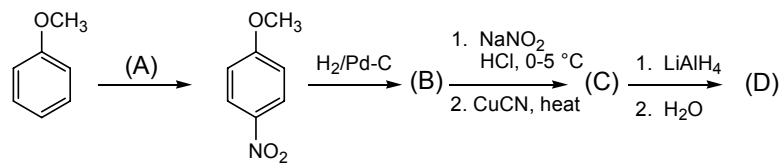
Short Answer Questions. 40 points.

13. Using the curved arrow formalism show the bond making and bond breaking that occurs in the following conversion. (23.52, 10 points)

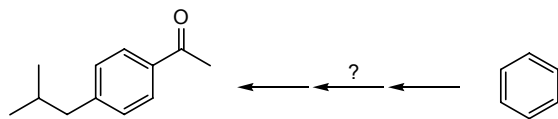


Source

14. Give the structures of the missing compounds and reagents in the following reaction sequence. (23.45, 10 pts)



15. Propose a synthesis of 4-isobutylacetophenone from benzene and any other necessary reagents. (22.43, 10 pts)



16. Predict the products of the following reactions. (WS 10, class quiz 10 pts)

