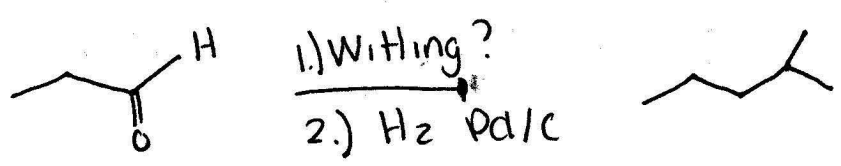
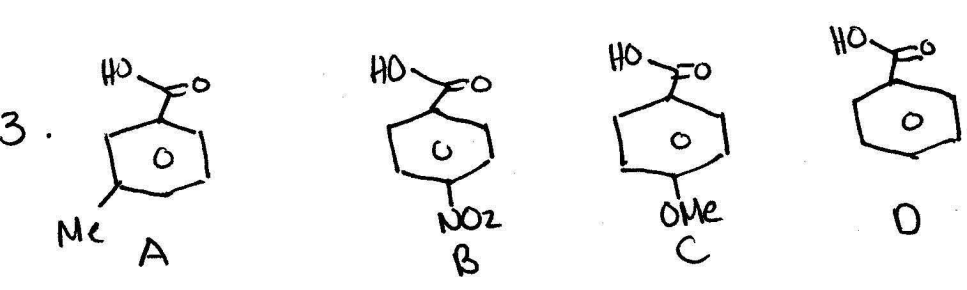


- 1.) BIBAH, ether
- 2.) H3O+



- 1.) Wittig?
- 2.) H2 Pd/C

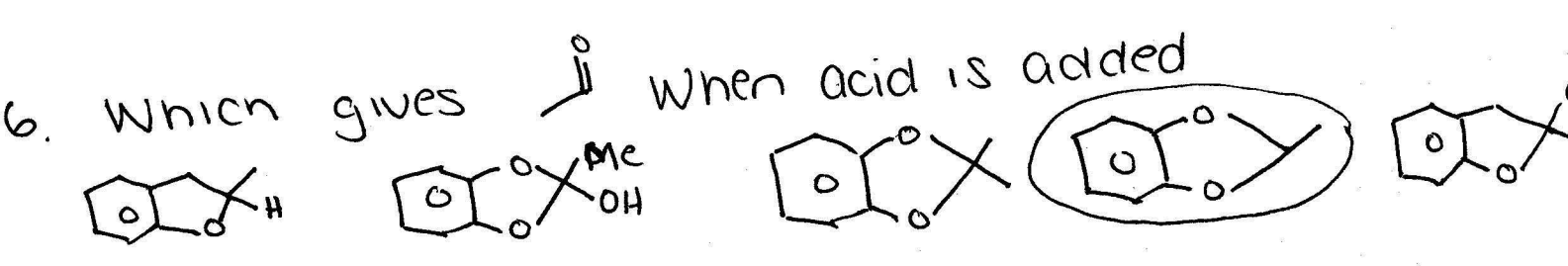
Which Wittig?
Ph3P C(CH3)2



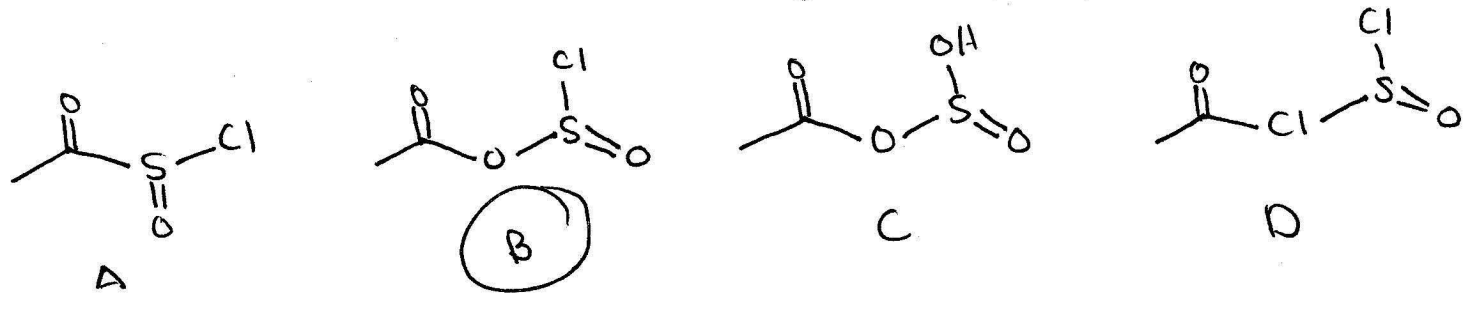
Order by decreasing Acidity
 $B > D > A > C$

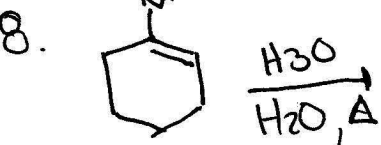
4. What is the product between alkoxide ion + carboxylic acid? carboxylate ion

5. Thrown out

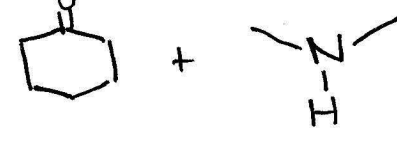


7. Acetic + Cl-S(=O)-Cl Which is a step in process of forming acyl chloride

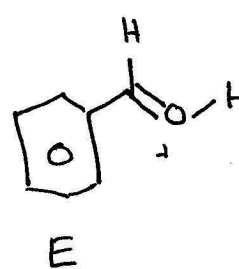
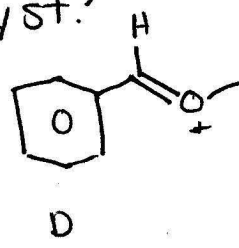
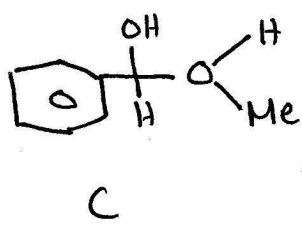
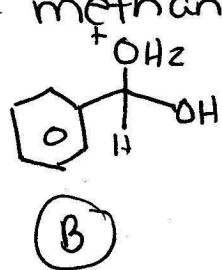
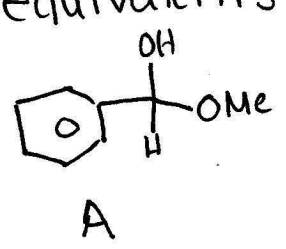




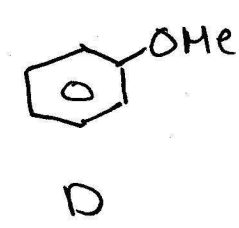
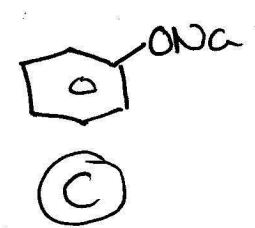
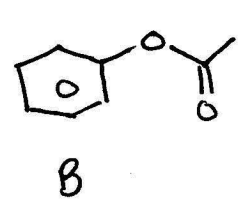
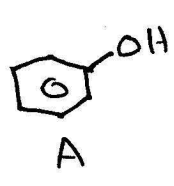
What is the product?



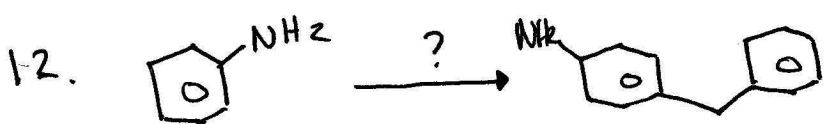
9. Which is not intermediate of benzaldehyde with 2 equivalents of methanol in acid catalyst?



10. Which undergoes protonation more rapidly?

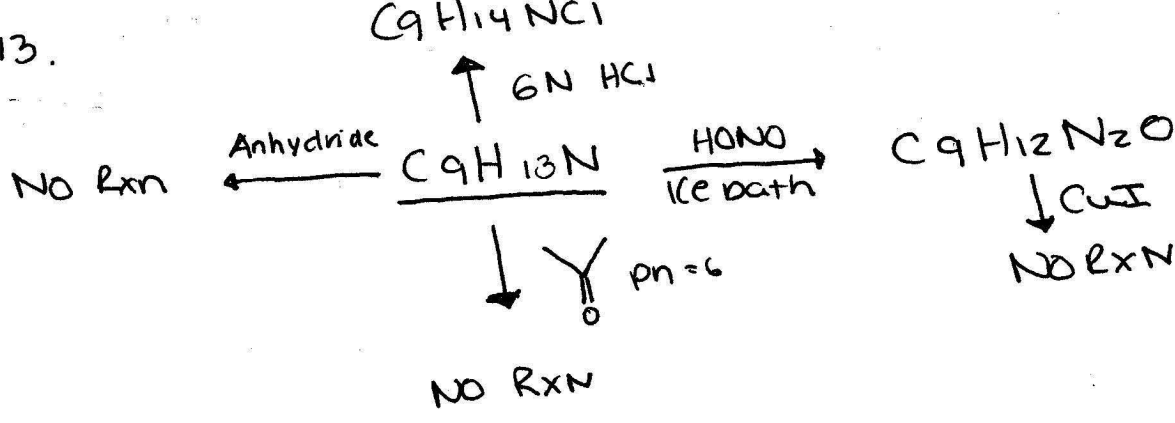


11. What is the major product of bromination of

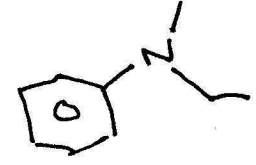


- A. 1.) PhCOCl, AlCl3 2.) ZnHg, HCl
- B. 1.) PhBr, FeBr3 2.) MeBr, FeBr3
- C. 1.) ClCOCH3, Pyr 2.) PhCOCl, AlCl3 3.) ZnHg, HCl 4.) H2SO4, Δ 5.) NaOH
- D. 1.) PhCOCl 2.) ClC1=CC=CC=C1, AlCl3 3.) H2, Pd/C

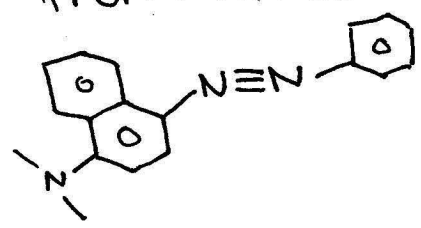
13.



What is structure of middle compound?



4. How would you synthesis the following starting from nitrobenzene?



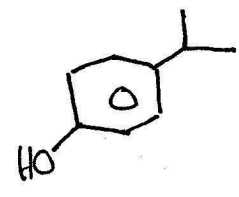
1. H_2 Pd/C
2. HONO ice bath
- 3.

5.

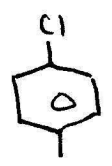


- 1.) CH_3CH_2Br , $AlCl_3$
- 2.) HNO_2 , H_2SO_4
- 3.) H_2 Pd/C
- 4.) HONO, HCl
- 5.) CaO , H_2O

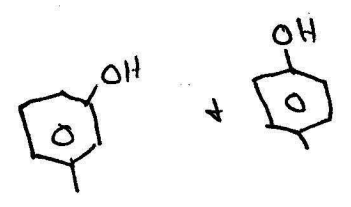
What is product?



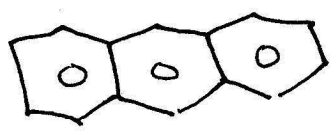
6.



What is product when OH is added through benzyne intermediate?



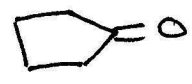
17.



How many resonance structures?

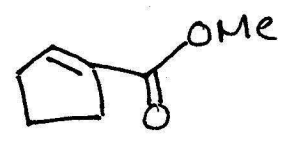
4

18.

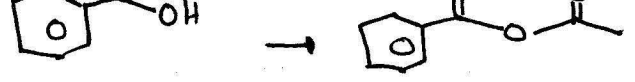


1. HCN, NaOH
2. H_2O^+ , H_2O
3. $SOCl_2$
4. MeOH, NEONa

What is product?



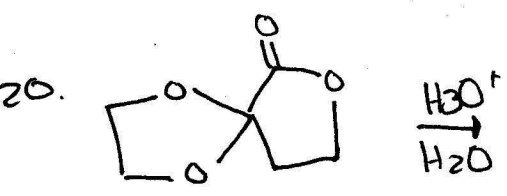
19. Which sequence is best:



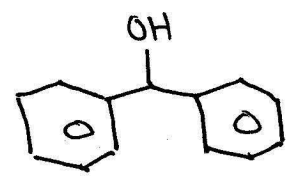
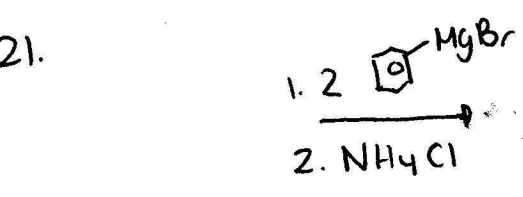
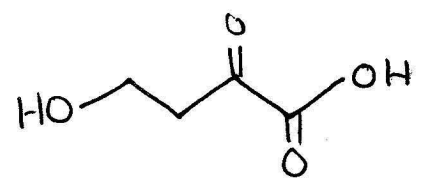
- 1.) SOCl2
- 2.) CC(=O)[O-]

or

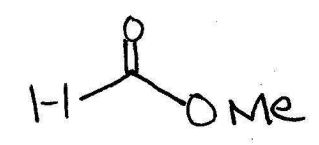
- 1.) OH-
- 2.) CC(=O)Cl



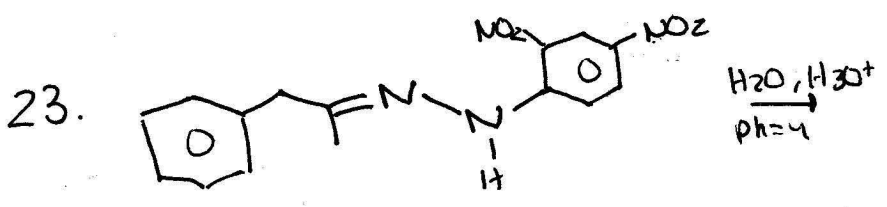
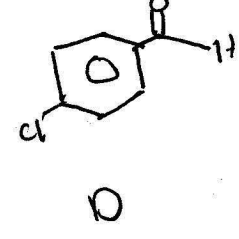
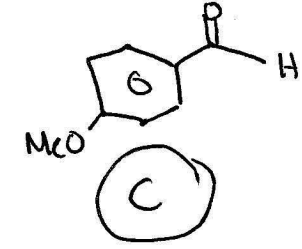
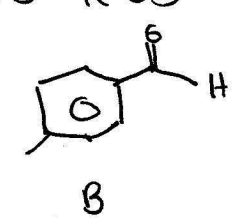
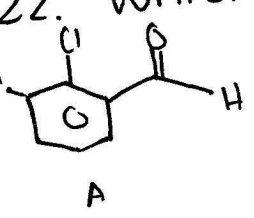
What is product?



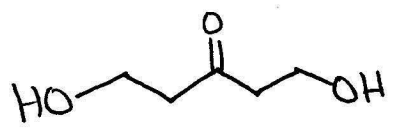
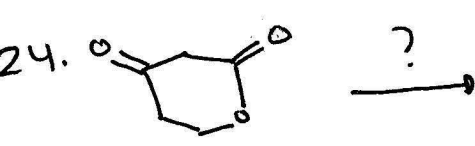
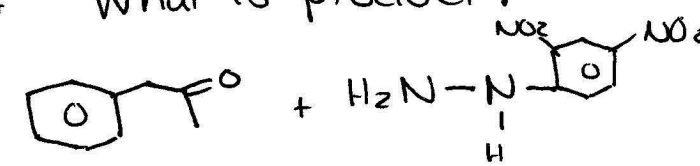
What is starting material?



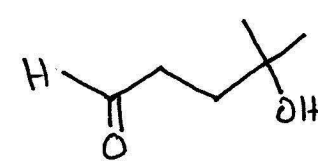
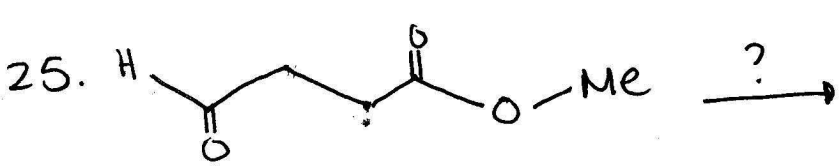
22. Which is least reactive when -CN is added



What is product?



- 1.) MeOH xs, H+
- 2.) LiAlH4
- 3.) H3O+



- 1.) HO OH, H+
- 2.) 2 MeMgBr
- 3.) H3O+, H2O