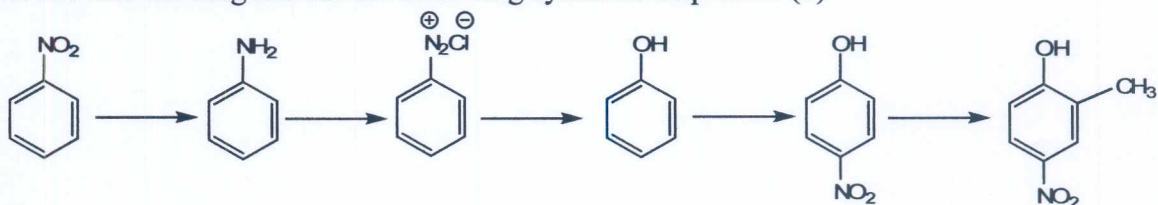


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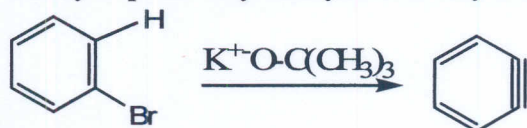
1. Provide the product(s) for the following reactions. (2)



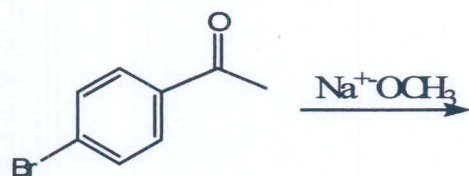
2. Provide the reagents for the following synthetic sequence. (5)



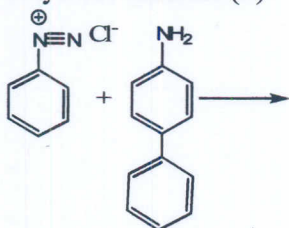
3. Provide a mechanism to illustrate the conversion of bromobenzene to benzyne and briefly explain why benzyne is a very reactive reaction intermediate. (5)



4. Provide the product and a mechanism for the following reaction. (5)

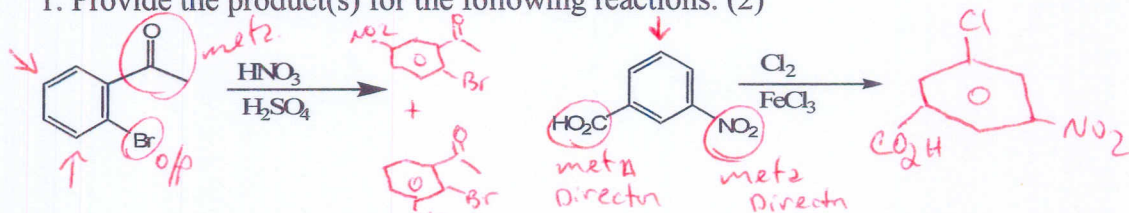


5. Show the product for the following reaction and briefly explain why it can be used as a dye for fabrics. (3)

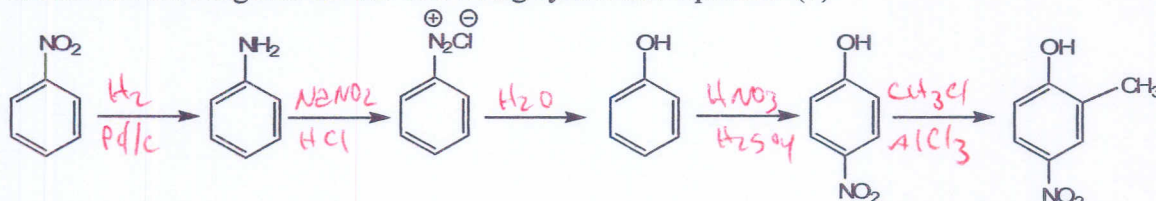


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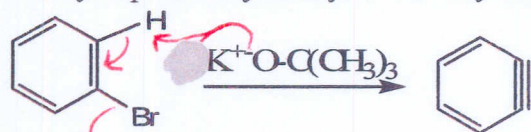
1. Provide the product(s) for the following reactions. (2)



2. Provide the reagents for the following synthetic sequence. (5)

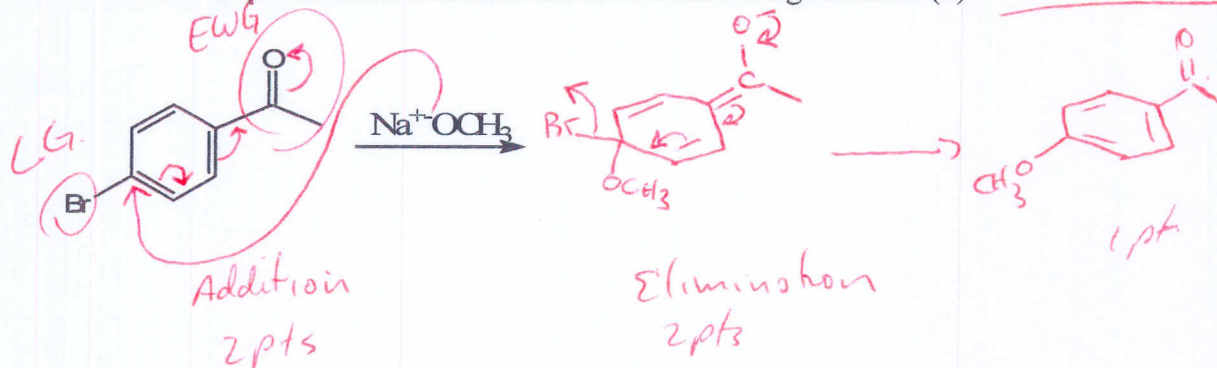


3. Provide a mechanism to illustrate the conversion of bromobenzene to benzyne and briefly explain why benzyne is a very reactive reaction intermediate. (5)

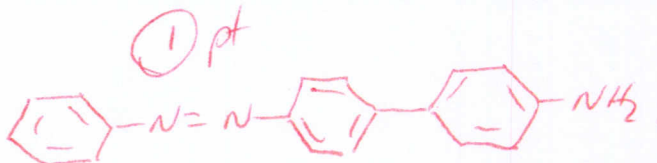
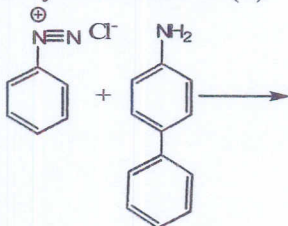


2pt
 Benzyne is a very reactive intermediate due to the large angle strain or deviation from the ideal bond angle of 180° .

4. Provide the product and a mechanism for the following reaction. (5)



5. Show the product for the following reaction and briefly explain why it can be used as a dye for fabrics. (3)



② pt highly colored due to extensive conjugation of π bonds which shifts the wavelength of absorption into the visible region of the spectrum.