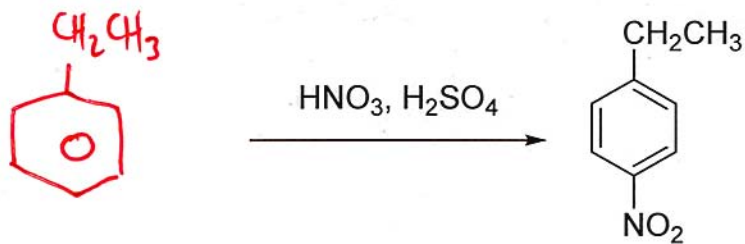


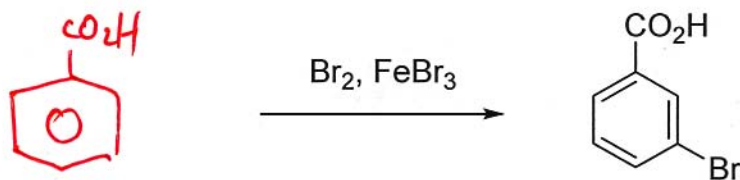


11-13) Give the starting material for the following reactions:

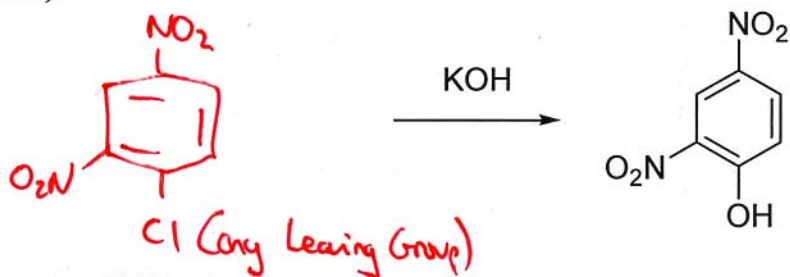
11)



12)

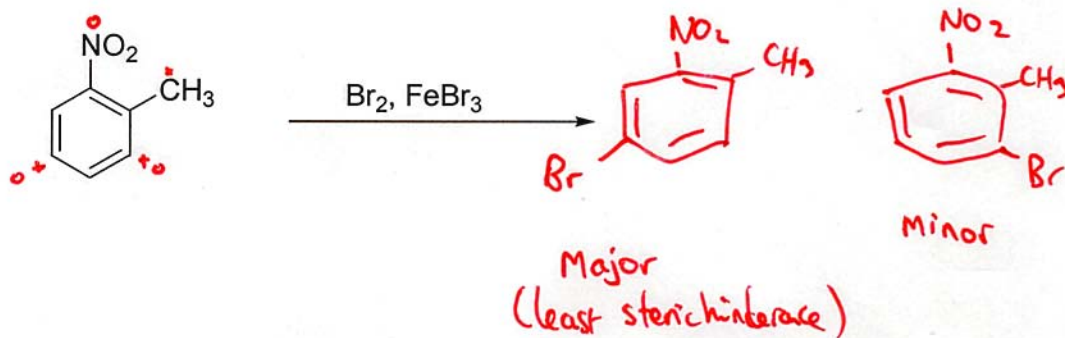


13)

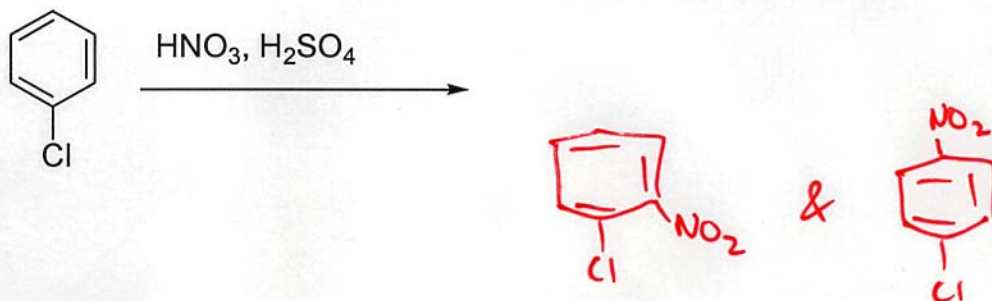


14-15) Give the major products:

14)

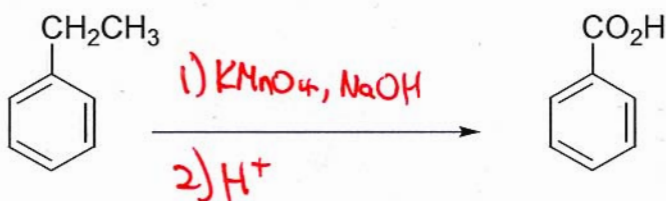


15)

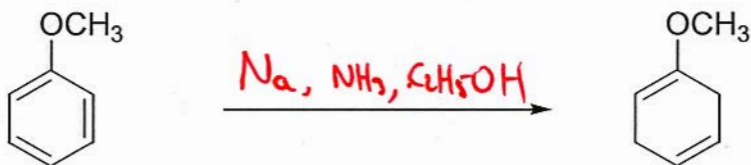


16-18) Give reagents and conditions for the following transformations.

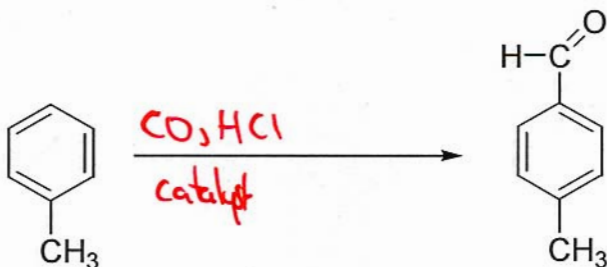
16)



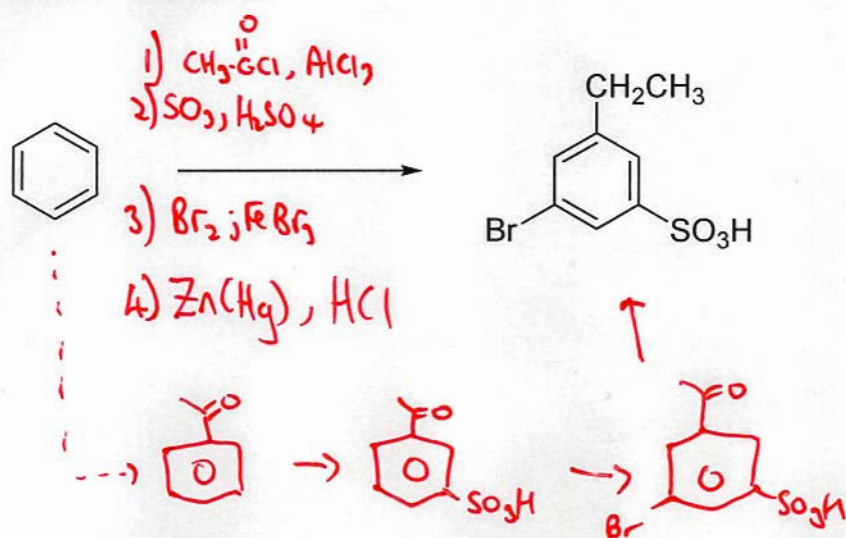
17)



18)



19 - 20) Provide reagents to achieve the following multistep transformation:



\*BONUS QUESTION for up to 2 extra points\*

Write the mechanism for the reaction of sulphuric acid and nitric acid which generates the nitronium ion.

