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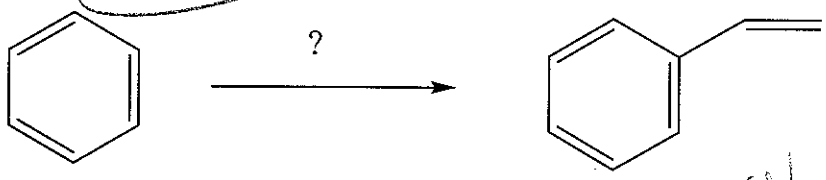
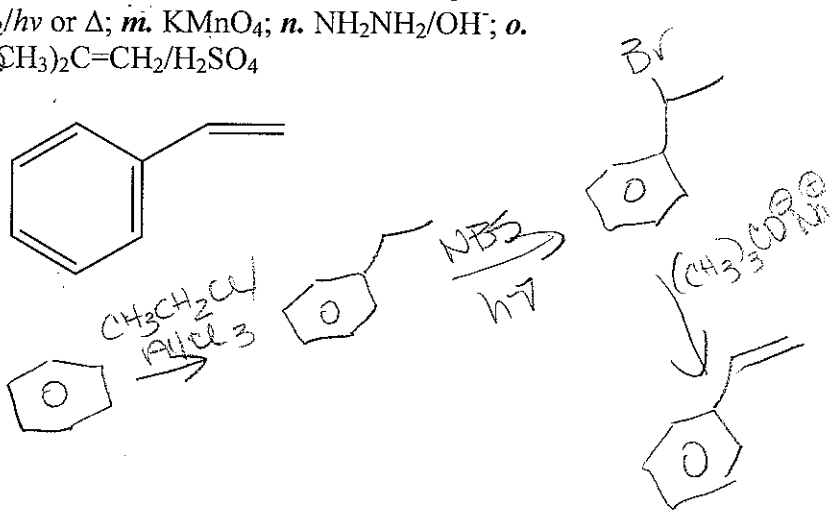
CHEM 256
Quiz due in class on Monday October 26, 2009

Name Key

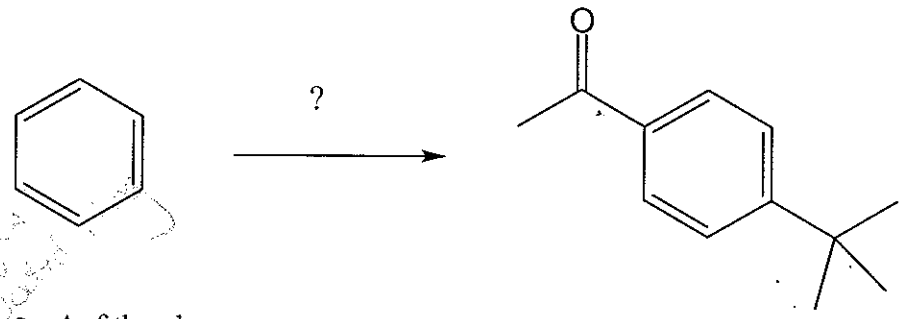
1. Choose the best reagents from the following list to perform the following chemical transformations. (Synthesis problem #1)
a. H_2/Pd-C; ***b.*** $Cl_2/FeCl_3$; ***c.*** HNO_3/H_2SO_4; ***d.*** SO_3/H_2SO_4; ***e.*** $CH_3CH_2Cl/AlCl_3$; ***f.*** $CH_3CH_2CH_2C{=}OCl/AlCl_3$; ***g.*** $NaOH/H_2O$; ***h.*** $(CH_3)_3CCl/AlCl_3$; ***i.*** $Br_2/FeBr_3$; ***j.*** Zn(Hg)/HCl; ***k.*** $(CH_3)_3COH/H_2SO_4$; ***l.*** Br_2/*hv* or Δ; ***m.*** $KMnO_4$; ***n.*** NH_2NH_2/OH^-; ***o.*** Fe/HCl; ***p.*** $(CH_3)_3CO^-Na^+$; ***q.*** NBS/hv; ***r.*** $(CH_3)_2C{=}CH_2/H_2SO_4$



A. h then i then p
B. e then m then j
C. r then l then p
D. ~~f then n then q~~ then g
E. e then q then p

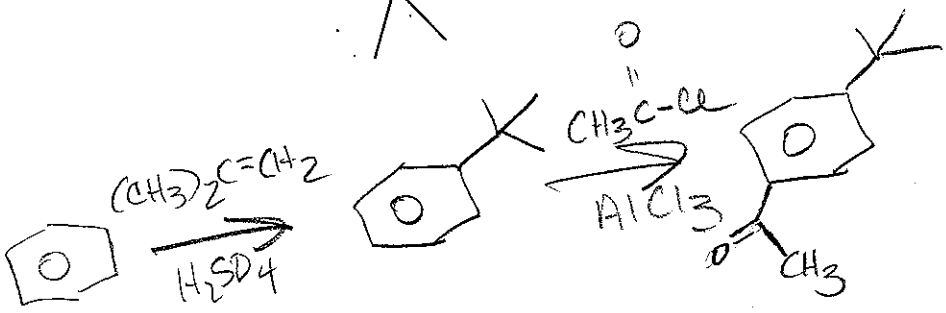


2. Choose the best reagents from the following list to perform the following chemical transformations. (Synthesis problem #2)
a. H_2/Pd-C; ***b.*** $Cl_2/FeCl_3$; ***c.*** HNO_3/H_2SO_4; ***d.*** SO_3/H_2SO_4; ***e.*** $CH_3CH_2Cl/AlCl_3$; ***f.*** $CH_3C{=}OCl/AlCl_3$; ***g.*** $NaOH/H_2O$; ***h.*** $(CH_3)_3CCl/AlCl_3$; ***i.*** $Br_2/FeBr_3$; ***j.*** Zn(Hg)/HCl; ***k.*** $(CH_3)_3COH/H_2SO_4$; ***l.*** Br_2/*hv* or Δ; ***m.*** $KMnO_4$; ***n.*** NH_2NH_2/OH^-; ***o.*** Fe/HCl; ***p.*** $(CH_3)_3CO^-Na^+$; ***q.*** NBS/hv; ***r.*** $(CH_3)_2C{=}CH_2/H_2SO_4$

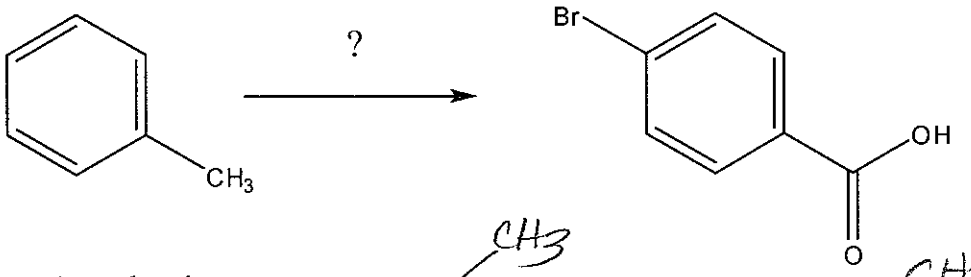


Can not do ortho/meta/para and a deactivator

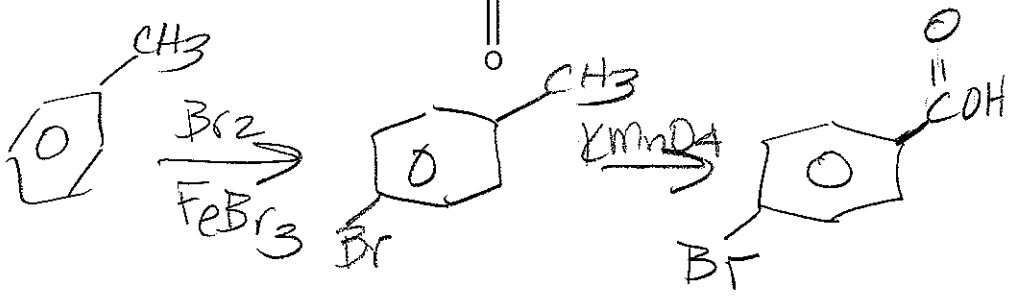
A. f then h
~~B. r then f~~
C. k then f then j
D. h then f then q then m
E. e then h then o



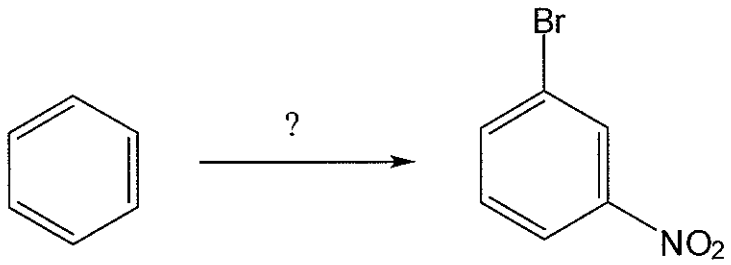
3. Choose the best reagents from the following list to perform the following chemical transformations. (Synthesis problem #3)
a. H_2/Pd-C; ***b.*** $Cl_2/FeCl_3$; ***c.*** HNO_3/H_2SO_4; ***d.*** SO_3/H_2SO_4; ***e.*** $CH_3CH_2Cl/AlCl_3$; ***f.*** $CH_3C{=}OCl/AlCl_3$; ***g.*** $NaOH/H_2O$; ***h.*** $(CH_3)_3CCl/AlCl_3$; ***i.*** $Br_2/FeBr_3$; ***j.*** Zn(Hg)/HCl; ***k.*** $(CH_3)_3COH/H_2SO_4$; ***l.*** $Br_2/h\nu$ or Δ; ***m.*** $KMnO_4$; ***n.*** NH_2NH_2/OH^-; ***o.*** Fe/HCl; ***p.*** $(CH_3)_3CO^-Na^+$; ***q.*** NBS/hv; ***r.*** $(CH_3)_2C{=}CH_2/H_2SO_4$



A. m then i
B. l then m
C. f then l
D. i then m
E. m then o then l



4. Choose the best reagents from the following list to perform the following chemical transformations. (Synthesis problem #4)
a. H_2/Pd-C; ***b.*** $Cl_2/FeCl_3$; ***c.*** HNO_3/H_2SO_4; ***d.*** SO_3/H_2SO_4; ***e.*** $CH_3CH_2Cl/AlCl_3$; ***f.*** $CH_3C{=}OCl/AlCl_3$; ***g.*** $NaOH/H_2O$; ***h.*** $(CH_3)_3CCl/AlCl_3$; ***i.*** $Br_2/FeBr_3$; ***j.*** Zn(Hg)/HCl; ***k.*** $(CH_3)_3COH/H_2SO_4$; ***l.*** $Br_2/h\nu$ or Δ; ***m.*** $KMnO_4$; ***n.*** NH_2NH_2/OH^-; ***o.*** Fe/HCl; ***p.*** $(CH_3)_3CO^-Na^+$; ***q.*** NBS/hv; ***r.*** $(CH_3)_2C{=}CH_2/H_2SO_4$



A. c then i
B. i then c
C. l then c
D. d then g then i
E. g then c then i