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中国科学院

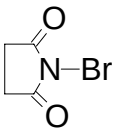
1990 年硕士学位研究生入学考试试题

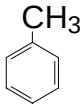
有机化学

一,完成下列反应:(注意产物的立体构型,立体异构体) (24 分)

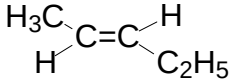
1. $CH_3COCH_3 + H_2CO \xrightarrow{OH^{\ominus}}$?

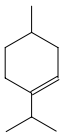
2. $CH_3CH_2CH_2Br \xrightarrow{NaCN}$? $\xrightarrow{H_3O^{\oplus}}$? $\xrightarrow{NH_3(过量)}$?

3. $CH_3CH_2CH{=}CH_2 \xrightarrow{LiAlH_4}$? +  $\longrightarrow$? $\xrightarrow[(CH_3)_3COH]{(CH_3)_3COK}$?

4.  + $Br_2 \xrightarrow{Tl(OOCF_3)_3}$? $\xrightarrow[乙醚]{Mg}$? $\xrightarrow[2\cdot\ H_3O^{\oplus}]{1\cdot\ \triangledown O}$?

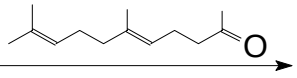
5. + $H_3CO_2CC{\equiv}CCO_2CH_3 \longrightarrow$?

6.  $\xrightarrow{Br_2/CCl_4}$?

7.  $\xrightarrow[2\cdot\ H_2O_2/OH^{\ominus}]{1\cdot\ BH_3}$?

8. $\xrightarrow[Zn(Cu)]{CH_2I_2}$?

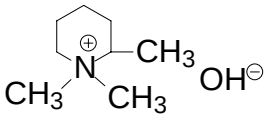
9. $Br(CH_2)_4Br + 2Ph_3P \longrightarrow$? $\xrightarrow{2\ RLi}$?

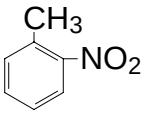
   2  ?

10. + $CH_3COCl \xrightarrow{AlCl_3}$? $\xrightarrow{BrCH_2CO_2C_2H_5}$ $\xrightarrow[2\cdot\ H_3O^{\oplus}]{1\cdot\ Zn/乙醚}$?

11. $(CH_3)_2CHCHO + CH_2O \xrightarrow[H_2O]{K_2CO_3}$? $\xrightarrow[2\cdot\ KCN]{1\cdot\ NaHSO_3}$?

    $\xrightarrow{H_3O^{\oplus}}$? $\xrightarrow{-H_2O}$? $\xrightarrow{H_2NCH_2CH_2COOH}$?

12.  $\xrightarrow{\triangle}$?

13.  $\xrightarrow[H^{\oplus}]{KMnO_4}$? $\xrightarrow{Fe/H^{\oplus}}$? $\xrightarrow[0\sim5℃]{NaNO_2/HCl}$?

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