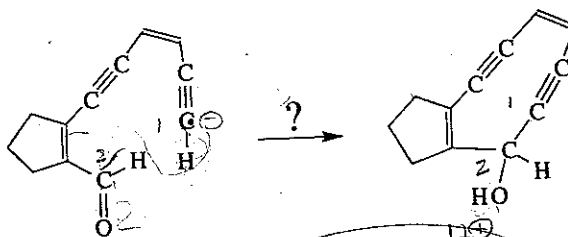



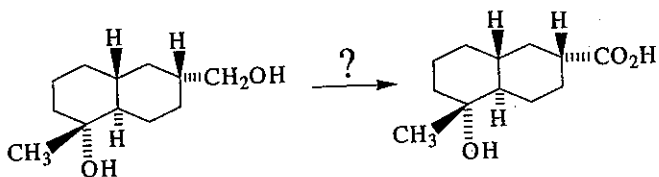
26. How can this transformation be accomplished?




- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ **D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$** E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA **J. NaH**
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. $\text{CH}_3-\text{C}(=\text{O})-\text{CH}_2\text{CH}_3$
 a) A then F b) F then A **c) J then D** d) A then D e) D then E

ANS. c)

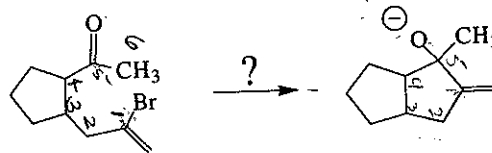
27. How can this transformation be accomplished?




- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. $\text{CH}_3-\text{C}(=\text{O})-\text{CH}_2\text{CH}_3$
 a) G b) H c) I d) L e) D

ANS. a)

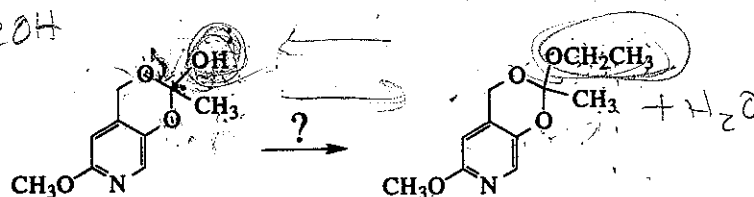
28. How can this transformation be accomplished?




- A. Mg** B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ **D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$** E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. $\text{CH}_3-\text{C}(=\text{O})-\text{CH}_2\text{CH}_3$
 a) J b) I c) F d) G **e) A**

ANS. e)

29. How can this transformation be accomplished?

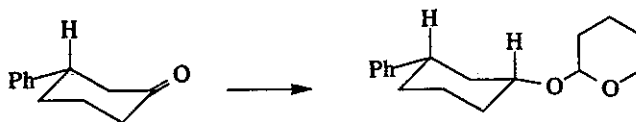



- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. N_2
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. $\text{CH}_3-\text{C}(=\text{O})-\text{CH}_2\text{CH}_3$

- a) B b) M c) D d) H e) C

ANS. e)

30. How can this transformation be accomplished?

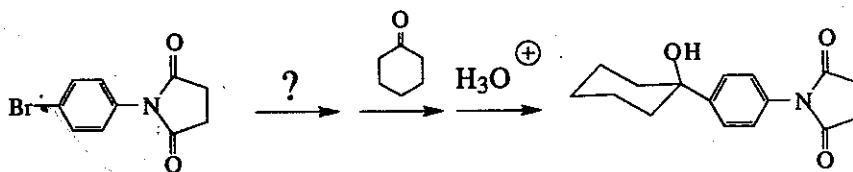



- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. $\text{CH}_3-\text{C}(=\text{O})-\text{CH}_2\text{CH}_3$

- a) F then N b) D then N c) J then N d) J then P e) N then F

ANS. a)

31. How can this transformation be accomplished?

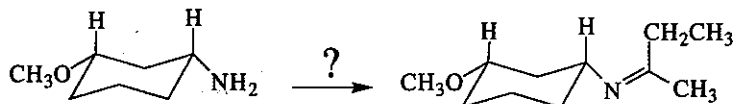



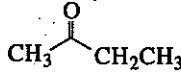
- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. $\text{CH}_3-\text{C}(=\text{O})-\text{CH}_2\text{CH}_3$

- a) J b) F then E c) A then F d) J then H e) A

ANS. e)

32. How can this transformation be accomplished?



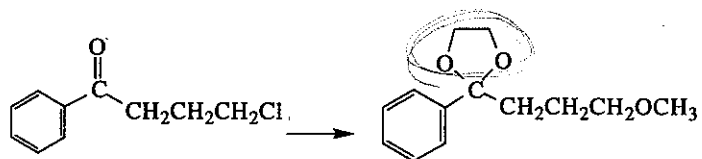
- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. 


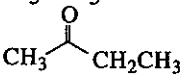
- a) G b) P c) K then F d) P e) M

ANS. b)

or d

33. How can this transformation be accomplished?



- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. 

- a) M then A then P b) K then L c) N then L d) M then L e) M then A then

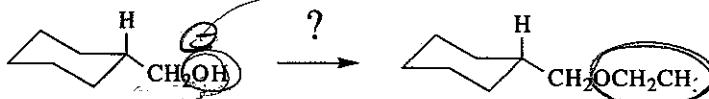
ANS. d)


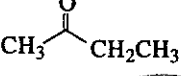
SN2



ether synthesis

34. How can this transformation be accomplished?

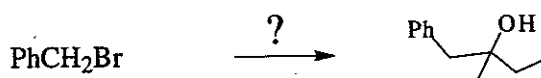



- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. 

- a) D then C b) E then C c) J then B d) H then C e) N then L

ANS. c)

35. How can this transformation be accomplished?

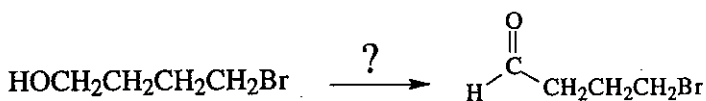



- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH/TsOH}$ D. $\text{H}_2\text{O/H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$
 O. $\text{NaOH/H}_2\text{O}$ P. $\text{CH}_3\text{C(=O)CH}_2\text{CH}_3$ M. $\text{HO-CH}_2\text{-CH}_2\text{-OH/TsOH}$ N.  /TsOH

- a) A then P then D b) P then F then D c) D then P
 d) J then P then D e) L then D

ANS. a)

36. How can this transformation be accomplished?

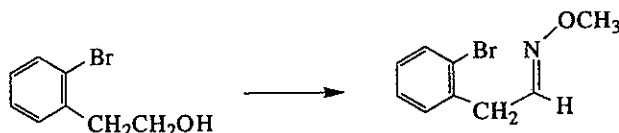



- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH/TsOH}$ D. $\text{H}_2\text{O/H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO-CH}_2\text{-CH}_2\text{-OH/TsOH}$ N.  /TsOH
 O. $\text{NaOH/H}_2\text{O}$ P. $\text{CH}_3\text{C(=O)CH}_2\text{CH}_3$

- a) L b) D c) H d) G e) O

ANS. c)

37. How can this transformation be accomplished?

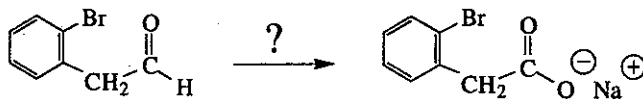



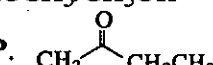
- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH/TsOH}$ D. $\text{H}_2\text{O/H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO-CH}_2\text{-CH}_2\text{-OH/TsOH}$ N.  /TsOH
 O. $\text{NaOH/H}_2\text{O}$ P. $\text{CH}_3\text{C(=O)CH}_2\text{CH}_3$

- a) D then K b) F c) H then K d) G then K e) K then I

ANS. c)

38. How can this transformation be accomplished?

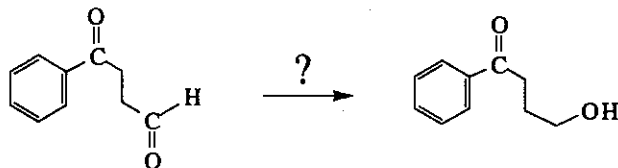



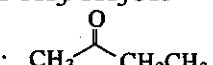
- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. 

- a) O b) L c) F then D d) G then O e) J then O

ANS. d)

39. How can this transformation be accomplished?

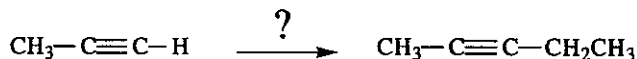



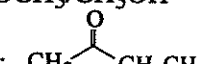
- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. 

- a) G b) J c) L d) H e) F

ANS. e)

40. How can this transformation be accomplished?



- A. Mg B. $\text{CH}_3\text{CH}_2\text{Br}$ C. $\text{CH}_3\text{CH}_2\text{OH}/\text{TsOH}$ D. $\text{H}_2\text{O}/\text{H}_2\text{SO}_4$ E. Na
 F. $\text{NaBH}_4/\text{CH}_3\text{OH}$ G. $\text{CrO}_3/\text{H}_2\text{SO}_4$ H. PCC I. mCPBA J. NaH
 K. CH_3ONH_2 L. $\text{NaOCH}_3/\text{CH}_3\text{OH}$ M. $\text{HO}-\text{CH}_2-\text{CH}_2-\text{OH}/\text{TsOH}$ N.  /TsOH
 O. $\text{NaOH}/\text{H}_2\text{O}$ P. 

- a) C then D b) B then J c) J then B d) A then P then D e) D then C

ANS. c)