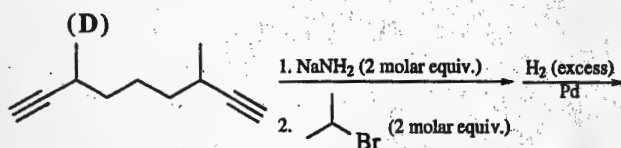
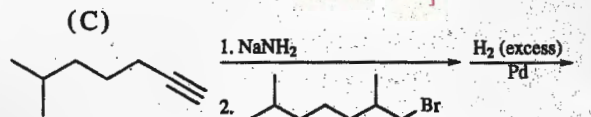
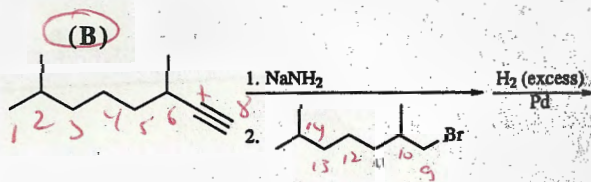
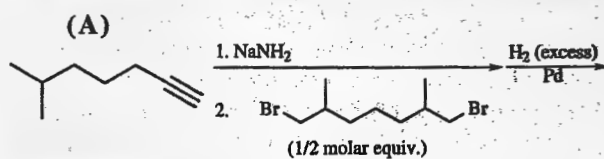
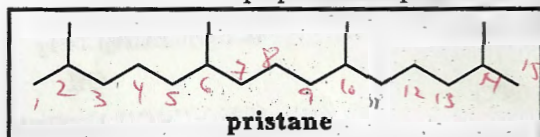
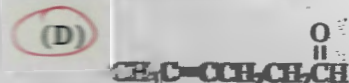
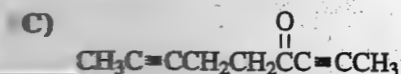
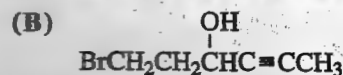
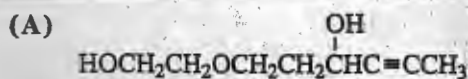
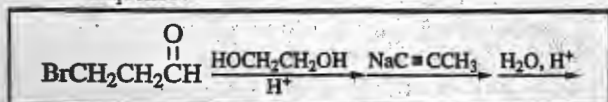


Practice Questions

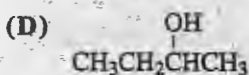
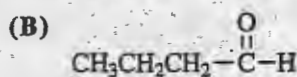
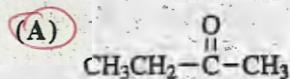
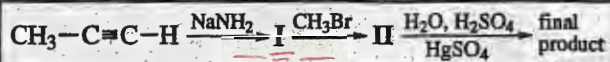
1. Alkene derivatives of pristane (2,6,10,14-tetramethylpentadecane) can be isolated from marine zooplankton and are important in the study of the marine food chain. Which of these routes is best for the preparation of pristane?



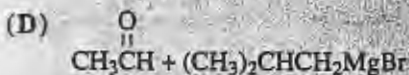
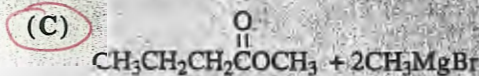
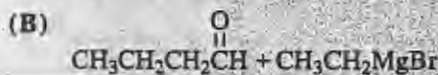
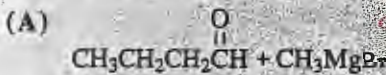
2. What is the expected product from this reaction sequence?



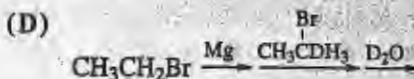
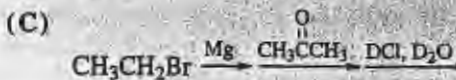
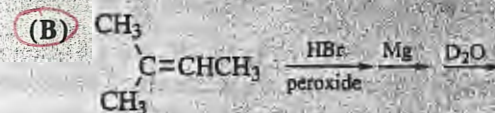
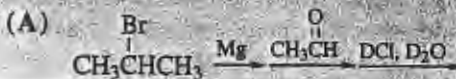
3. What is the major product of this reaction sequence?



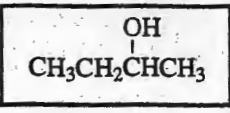
4. Which combination of reagents could be used to synthesize this alcohol?



5. Which sequence could be used to synthesize this deuterium labeled hydrocarbon?



6. Which reaction sequence would accomplish the synthesis of this alcohol?

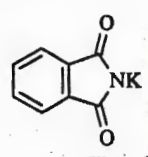


- (A) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow[\text{ether}]{\text{HBr}}$ $\xrightarrow{\text{Mg}}$ $\xrightarrow[2. \text{H}_2\text{O}, \text{H}^+]{1. \text{HCHO}}$
- (B) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow[2. \text{H}_2\text{O}, \text{H}^+]{1. \text{CH}_3\text{MgBr}}$ $\xrightarrow[2. \text{H}_2\text{O}, \text{H}^+]{1. \text{LiAlH}_4}$
- (C) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow[180^\circ\text{C}]{\text{conc. H}_2\text{SO}_4}$ $\xrightarrow[\text{H}^+]{\text{H}_2\text{O}}$
- (D) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \xrightarrow{\text{PCC}}$ $\xrightarrow[2. \text{H}_2\text{O}, \text{H}^+]{1. \text{CH}_3\text{MgBr}}$

7. Which of these methods will produce 1-pentanol?

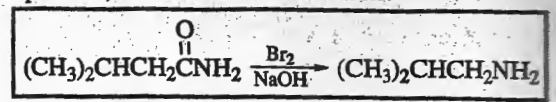
- I $\text{CH}_3\text{CH}_2\text{CH}_2\text{MgBr} \xrightarrow[2. \text{H}_2\text{O}, \text{H}^+]{1. \text{C}_2\text{H}_5\text{O}}$
 - II $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}=\text{CH}_2 \xrightarrow[2. \text{H}_2\text{O}_2, \text{NaOH}]{1. \text{B}_2\text{H}_6, \text{THF}}$
 - III $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{Br} \xrightarrow[\text{H}^+]{\text{KOC}(\text{CH}_3)_3, \text{H}_2\text{O}}$
 - IV $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{MgBr} \xrightarrow[2. \text{H}_2\text{O}, \text{H}^+]{1. \text{HCHO}}$
- (A) I, II, IV (B) I, II, III
 (C) I, III, IV (D) II, III, IV

8. Which would be the best method to prepare propylamine uncontaminated with dipropylamine?

- (A) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} \xrightarrow{\text{NH}_3}$
- (B) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} \xrightarrow[\text{NaOH}]{\text{H}_2\text{O}}$ 
- (C) $\text{CH}_3\text{CH}_2\text{CN} \xrightarrow[\text{NaOH}]{\text{Br}_2}$
- (D) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br} \xrightarrow[\text{Pt}]{\text{KCN}, \text{H}_2}$

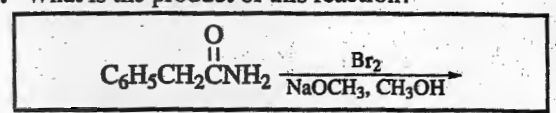
hot a great question. need NH2-NH2 not NaOH, H2O.

9. What intermediate, leading to the major product, is formed in this reaction?



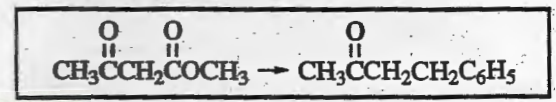
- (A) $(\text{CH}_3)_2\text{CHCH}_2\overset{\text{O}}{\parallel}\text{C}^-\text{NH}_2$
- (B) $(\text{CH}_3)_2\text{CHCH}_2\overset{\text{O}^-}{\parallel}\text{CNH}_2$
- (C) $(\text{CH}_3)_2\text{CHCH}_2\text{N}=\text{C}=\text{O}$
- (D) $(\text{CH}_3)_2\text{CHCH}_2\overset{\text{O}}{\parallel}\text{CO}^-$

10. What is the product of this reaction?



- (A) $\text{C}_6\text{H}_5\text{CH}_2\text{NH}_2$
- (B) $\text{C}_6\text{H}_5\text{CH}_2\overset{\text{O}}{\parallel}\text{COCH}_3$
- (C) $\text{C}_6\text{H}_5\text{CH}_2\overset{\text{O}}{\parallel}\text{NHCOC}_2\text{H}_5$
- (D) $\text{C}_6\text{H}_5\text{CH}(\text{Br})\overset{\text{O}}{\parallel}\text{CNH}_2$

11. Which sequence of reagents would best effect this transformation?



- (A) $\text{NaOCH}_3 \xrightarrow{\text{C}_6\text{H}_5\text{CH}_2\text{Br}} \xrightarrow[\Delta]{\text{H}_2\text{O}, \text{H}^+}$
- (B) $\text{NaOH} \xrightarrow{\text{C}_6\text{H}_5\text{CH}_2\text{Br}} \xrightarrow[\Delta]{\text{H}_2\text{O}, \text{H}^+}$
- (C) $\text{LiAlH}_4 \xrightarrow{\text{HBr}} \xrightarrow{\text{C}_6\text{H}_5\text{Li}}$
- (D) $\text{C}_6\text{H}_5\text{CH}_2\text{Li} \xrightarrow{\text{NaBH}_4} \xrightarrow{\text{H}_2\text{O}, \text{H}^+}$