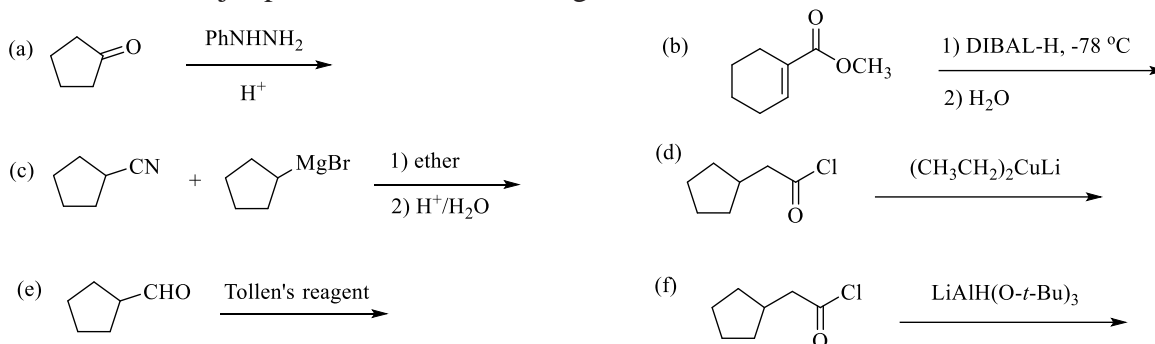


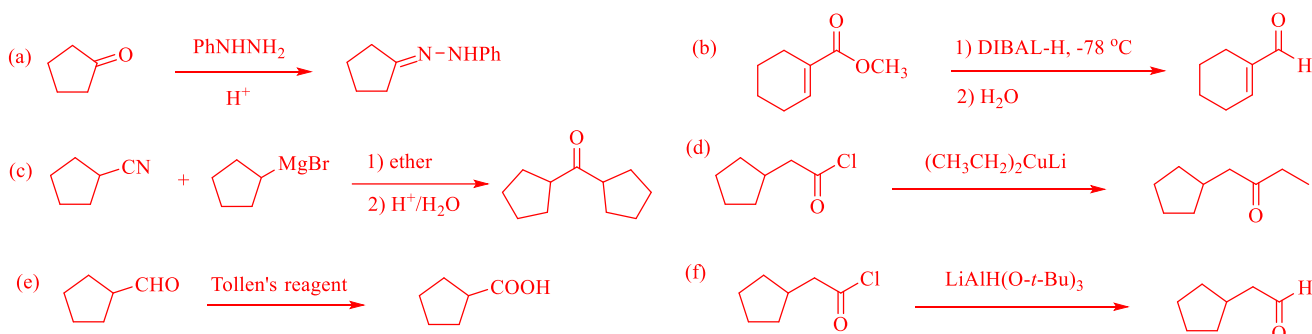
Key for Problem Set 9

Aldehyde and Ketone

1. Predict the major products of the following reactions.



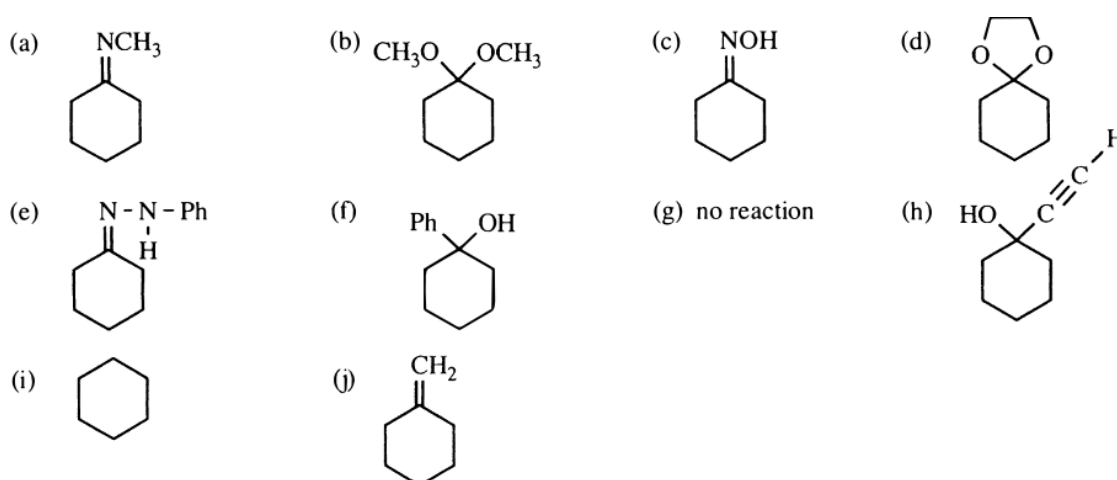
Solution



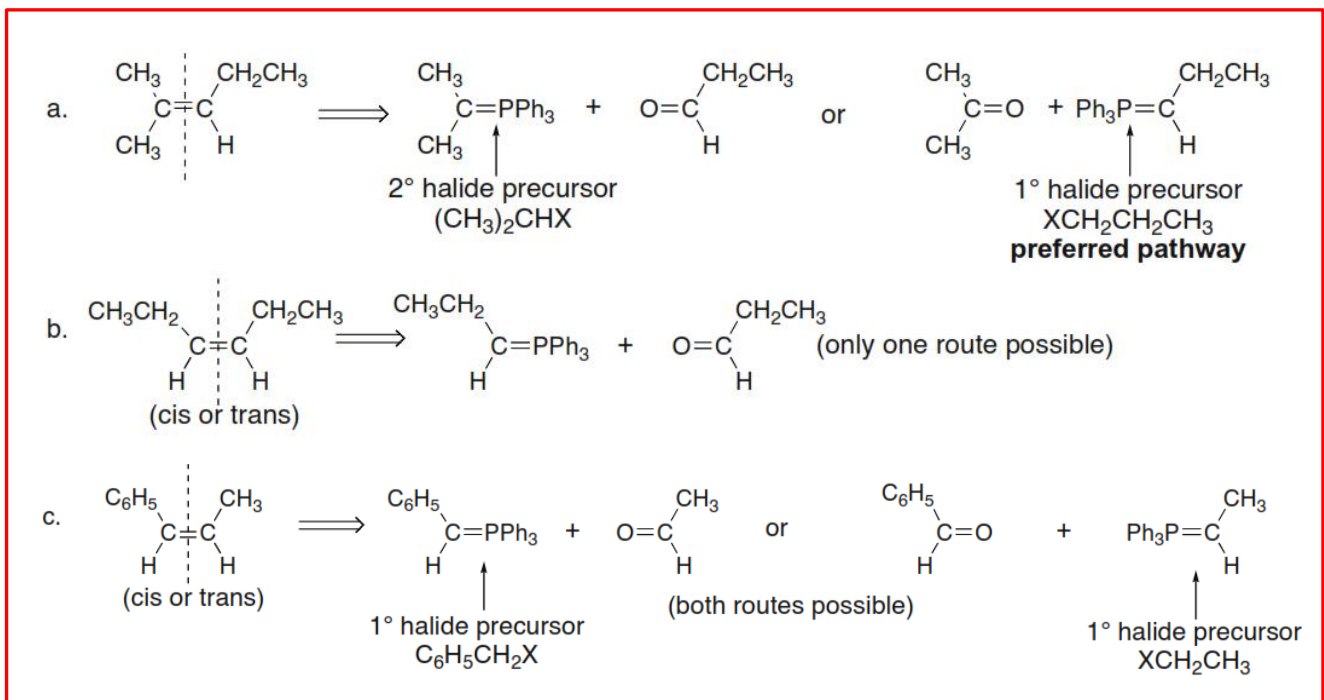
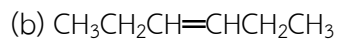
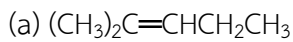
2. Predict the products formed when cyclohexanone reacts with the following reagents.

- (a) $\text{CH}_3\text{NH}_2, \text{H}^+$ (b) excess $\text{CH}_3\text{OH}, \text{H}^+$
 (c) hydroxylamine and weak acid (d) ethylene glycol and p-toluenesulfonic acid
 (e) phenylhydrazine and weak acid (f) PhMgBr and then mild H_3O^+
 (g) Tollens reagent (h) sodium acetylide, then mild H_3O^+
 (i) hydrazine, then hot, fused KOH (j) $\text{Ph}_3\text{P}=\text{CH}_2$

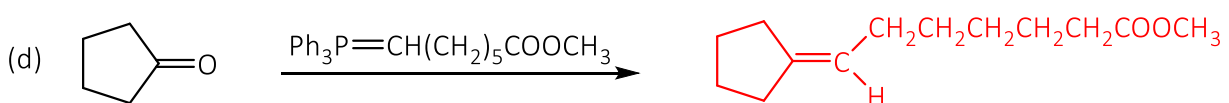
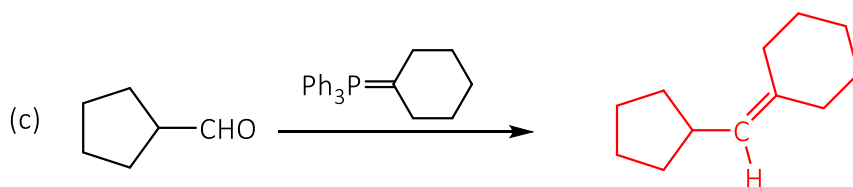
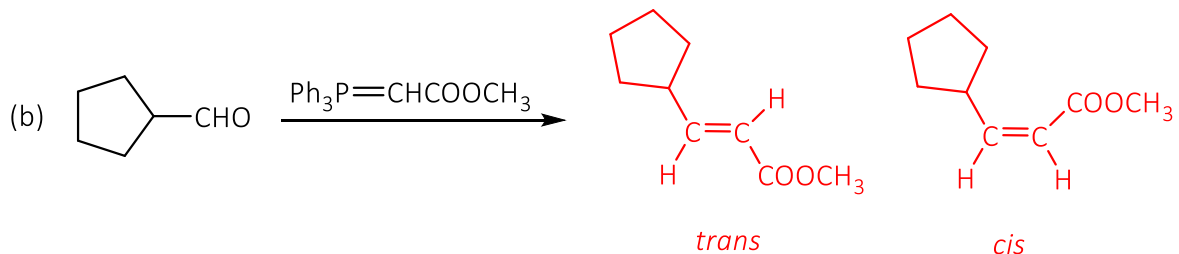
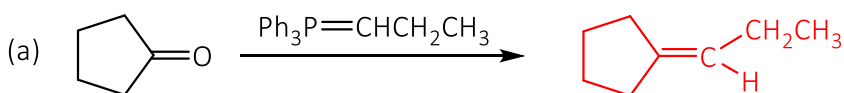
Solution



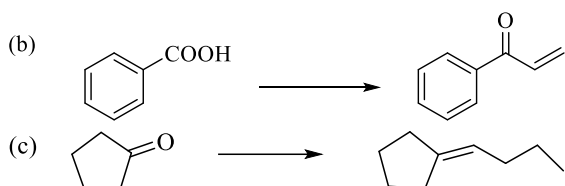
3. จงทำนายสารตั้งต้นในปฏิกิริยาวิทิกของสารผลิตภัณฑ์ต่อไปนี้



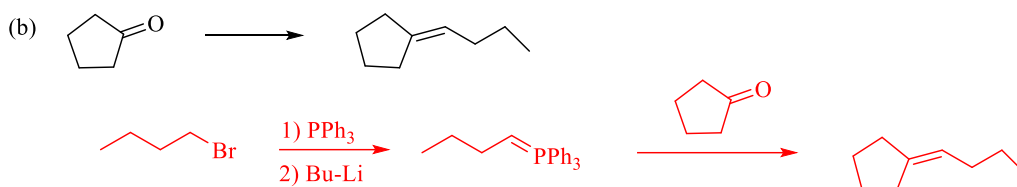
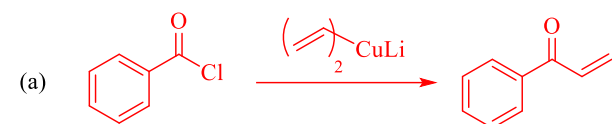
4. จงเขียนสารผลิตภัณฑ์ของแต่ละปฏิกิริยาวิทิกที่แสดงดังต่อไปนี้ พร้อมทั้งเขียนสเตอริโอของสารผลิตภัณฑ์



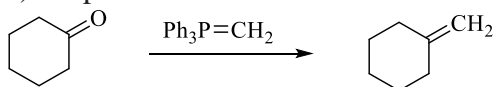
5. Show how you would accomplish the following synthetic conversions efficiently and in good yield. You may use any necessary additional reagents and solvents.



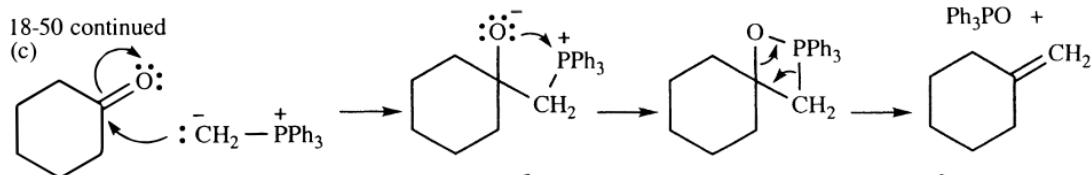
Solution



6) Propose mechanisms for the following reactions.



Solution



7. Predict the products formed when cyclohexanecarbaldehyde reacts with the following reagents.

- (a) PhMgBr , then H_3O^+ (b) Tollens reagent (c) $\text{H}_2\text{N-NH}_2$, then KOH , heat
(d) excess ethanol and acid (e) NaBH_4

Solution

