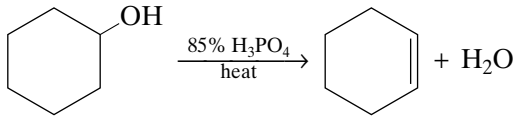
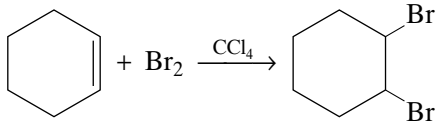
b. 

c. $CH_3-\overset{O}{\overset{\|}{C}}-OH + CH_3-OH \longrightarrow CH_3-\overset{O}{\overset{\|}{C}}-O-CH_3 + H_2O$

38. Which of the following reactions is a condensation reaction?

a. $CH_3C{\equiv}CH + HBr \xrightarrow{\text{ether}} CH_3-\overset{Br}{\overset{|}{C}}=CH_2$

b. 

c. $CH_3-CH_2-OH + CH_3-CH_2-OH \xrightarrow{H_2SO_4} CH_3-CH_2-O-CH_2-CH_3 + H_2O$

39. Which of the following reactions is an elimination reaction?

a. $CH_2{=}CH-CH_2-CH_3 + Cl_2 \longrightarrow Cl-CH_2-\underset{Cl}{\underset{|}{CH}}-CH_2-CH_3$

b. $CH_3-\underset{OH}{\underset{|}{CH}}-CH_3 \xrightarrow{H_3O^+} CH_3-CH{=}CH_2 + H_2O$

c. $CH_3CH_3 + Cl_2 \xrightarrow[\text{heat}]{\text{light or}} CH_3CH_2Cl + HCl$

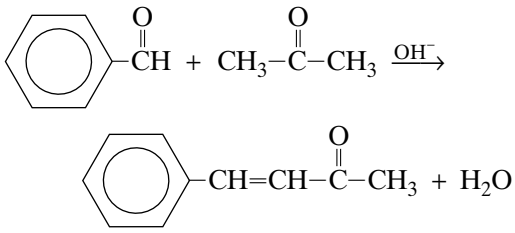
MIXED REVIEW

40. Classify each of the following reactions as an elimination reaction or a condensation reaction:

a. $CH_3-\underset{Br}{\underset{|}{C}}=CH_2 + NaNH_2 \longrightarrow CH_3C{\equiv}CH + NaBr + NH_3$

b. $CH_3-CH_2-\underset{OH}{\underset{|}{CH}}-CH_3 \xrightarrow[\text{heat}]{85\%\ H_3PO_4} CH_3-CH{=}CH-CH_3 + H_2O$

c. $CH_3-CH_2-OH + CH_3-\overset{O}{\overset{\|}{C}}-OH \longrightarrow CH_3-CH_2-O-\overset{O}{\overset{\|}{C}}-CH_3 + H_2O$

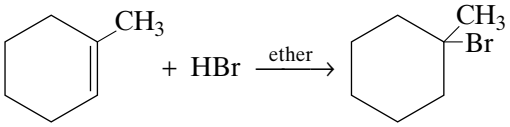
d. 

41. Classify each of the following reactions as a substitution reaction or an addition reaction:

a. $CH_3-CH_2-CH_2-CH_2-OH + HCl \xrightarrow[\text{heat}]{ZnCl_2} CH_3-CH_2-CH_2-CH_2-Cl + H_2O$

b. $CH_2{=}CH_2 + HBr \xrightarrow[25°C]{\text{ether}} CH_3-CH_2-Br$

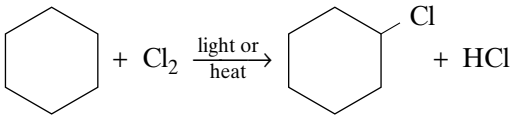
c. $CH{\equiv}CH + HCl \xrightarrow{HgCl_2} CH_2{=}CH-Cl$

d. 

42. Identify each of the following reactions as an addition, substitution, elimination, or condensation reaction:

a. $CH_3-\overset{O}{\overset{\|}{C}}-OH + CH_3-\underset{OH}{\underset{|}{CH}}-CH_3 \longrightarrow CH_3-\overset{O}{\overset{\|}{C}}-O-\underset{CH_3}{\underset{|}{CH}}-CH_3 + H_2O$

b. $CH_2{=}CH-CH_3 + Cl_2 \longrightarrow Cl-CH_2-\underset{Cl}{\underset{|}{CH}}-CH_3$

c. 

d.