Complete the following reactions. Circle the most favored products.

1. 
$$\bigcirc$$
OH +  $\bigcirc$ OH  $\boxed{[H_2O]}$ 

$$2$$
. + NaOH  $\longrightarrow$ 

4. 
$$H_2/Ni$$

5. —OH + OH [-
$$H_2$$
O]

6. 
$$OH + OH OH OH$$

$$^{7.}$$
  $\downarrow$  + HCI  $\rightarrow$ 

8. 
$$+ H_2(g) \rightarrow$$

9. —OH + OH 
$$[-H_2O]$$

10. 
$$H_2/Ni$$
  $\Delta$ 

11. 
$$\rightarrow$$
 OH  $+$  OH  $\xrightarrow{[:H_2O]}$ 

13. 
$$\bigcirc$$
 OH  $\bigcirc$   $\bigcirc$   $\bigcirc$   $\bigcirc$ 

14. 
$$\longrightarrow$$
  $\xrightarrow{H_2/Ni}$ 

20. 
$$\downarrow$$
 +  $\text{Cl}_2$   $\longrightarrow$ 

$$22.$$
 OH [0]

$$23.$$
 + HCl  $\rightarrow$ 

24. 
$$\longrightarrow$$
 +  $H_2O$  [H\*]

$$25. \hspace{0.2in} \bigcirc \hspace{0.2in} \bigcirc \hspace{0.2in} \hspace{0.2in} \hspace{0.2in} + \hspace{0.2in} \longrightarrow \hspace{0.2in} \bigcirc \hspace{0.2in} \longrightarrow \hspace{0.2in} \hspace{0.2in} \square \hspace{0.2in} \longrightarrow \hspace{0.2in} \square$$

Question 1: 
$$\bigcirc$$
OH +  $\bigcirc$ OH  $\bigcirc$ OH +  $\bigcirc$ OH  $\bigcirc$ OH +  $\bigcirc$ ONa  $\bigcirc$ OH +  $\bigcirc$ OH  $\bigcirc$ OH  $\bigcirc$ OH

Question 14: 
$$H_2/Ni$$
  $\Delta$  OH

Question 16: 
$$\downarrow$$
 OH  $+$   $\downarrow$  OH  $+$   $\downarrow$   $\downarrow$  OH  $+$   $\downarrow$  OH  $+$  OH  $+$   $\downarrow$  OH  $+$  OH

Question 17: 
$$OH \longrightarrow OH \longrightarrow H_2O$$

Question 18: 
$$\stackrel{\circ}{\bigvee}$$
 + NaOH  $\rightarrow$   $\stackrel{\circ}{\bigvee}$   $\stackrel{\circ}{\bigvee}$ 

Question 19: 
$$\longrightarrow$$
  $+$   $H_2O$   $\longrightarrow$   $OH$ 

Question 20: 
$$+ Cl_2 \rightarrow HCl + Cl$$

Question 21: 
$$+$$
 HCl  $\rightarrow$ 

Question 24: 
$$\longrightarrow$$
 +  $H_2O$   $\longrightarrow$   $\longrightarrow$  OH +  $\bigcirc$ OH

Question 25:  $\bigcirc$ OH +  $\bigcirc$ OH  $\underline{[H_2O]}$   $\longrightarrow$  +  $\bigcirc$