Complete the following reactions. Circle the most favored products.

1. 
$$H_2/Ni$$
  $\Delta$ 

$$2. \hspace{1cm} \overset{\text{NH}}{\longrightarrow} \hspace{1cm} + \hspace{1cm} \text{H}_2 \text{O} \hspace{1cm} \longleftrightarrow \hspace{1cm}$$

3. 
$$+ HCI + H_2O \rightarrow$$

5. 
$$\rightarrow$$
 NH, +  $H_2O$   $\Longrightarrow$ 

6. 
$$\underset{NH_2}{\bigvee}^{O} \xrightarrow{H_2/Ni} \xrightarrow{\Delta}$$

7. 
$$H_2/Ni$$
 $\Delta$ 

$$^{10.}$$
  $^{\rm NH}$   $^{+}$   ${\rm H_2O}$   $\Longrightarrow$ 

11. 
$$\downarrow 0$$
 +  $\rightarrow NH_2$   $[-H_2O]$ 

12. 
$$+ HCI + H_2O \rightarrow$$

13. 
$$^{\text{NH}_2}$$
 + HCl  $\longrightarrow$ 

14. 
$$+ HCI + H_2O \rightarrow$$

15. 
$$\begin{array}{c} NH_2 \\ + -CI \end{array}$$

16. 
$$\downarrow 0$$
 + NH<sub>3</sub>  $\underline{[H_2O]}$ 

$$^{17.}$$
  $-$ N $^{\prime}$   $^{+}$   $\mathrm{H}_{2}\mathrm{O}$   $\iff$ 

18. 
$$_{HN}$$
 + HCI +  $_{2}$ O  $\longrightarrow$ 

19. 
$$_{\rm NH_2}$$
 +  $_{\rm CI}$   $\longrightarrow$ 

$$20.$$
 NH + HCl  $\longrightarrow$ 

21. 
$$\downarrow$$
 +  $H_2O$   $\longleftrightarrow$ 

22. 
$$\longrightarrow$$
  $\longrightarrow$   $\longrightarrow$   $\longrightarrow$   $\longrightarrow$   $\longrightarrow$   $\longrightarrow$   $\longrightarrow$ 

23. 
$$+$$
 HCI  $+$  H<sub>2</sub>O  $-$ 

$$24. \qquad \begin{array}{c} \bigcirc \\ \bigcirc \\ \bigcirc \\ \bigcirc \\ \bigcirc \\ \bigcirc \\ \end{array} + \\ \begin{array}{c} \bigcirc \\ \bigcirc \\ \bigcirc \\ \\ \end{array} + \\ \begin{array}{c} \bigcirc \\ \bigcirc \\ \bigcirc \\ \\ \end{array}$$

25. 
$$\frac{N}{\Delta}$$
  $\frac{H_2/Ni}{\Delta}$ 

Question 3: 
$$+ HCI + H_2O \rightarrow + \frac{H}{H}CI$$

Question 6: 
$$H_2/Ni$$
 $\Delta$ 
 $NH_2$   $+$   $H_2O$ 

Question 7: 
$$H_2/Ni$$
  $\Delta$   $H_2O$ 

Question 8: 
$$+ \text{NaOH} \rightarrow 0$$

Question 9: 
$$\stackrel{\circ}{\bigvee}$$
 + NaOH  $\longrightarrow$   $\stackrel{\circ}{\bigvee}$   $\stackrel{\circ}{\circ}$   $\stackrel{\circ}{\circ}$   $\stackrel{\circ}{\bigvee}$   $\stackrel{\circ}{\circ}$   $\stackrel{\circ}{\bigvee}$   $\stackrel{\circ}{\circ}$   $\stackrel{\circ}{\bigvee}$   $\stackrel{\circ}{\circ}$   $\stackrel{\circ}{\bigvee}$   $\stackrel{\circ}{\circ}$   $\stackrel{\circ}{\vee}$ 

Question 10: 
$$\longrightarrow$$
  $H_2O$   $\longrightarrow$   $H_2O$   $\longrightarrow$   $H_2O$ 

Question 11: 
$$\downarrow^{\circ}$$
 +  $\downarrow^{\circ}$  +  $\downarrow^{\circ}$  +  $\downarrow^{\circ}$  +  $\downarrow^{\circ}$  +  $\downarrow^{\circ}$  +  $\downarrow^{\circ}$  +  $\downarrow^{\circ}$ 

Question 14: 
$$+ H_2O \rightarrow + H_2O \rightarrow + H_1CI$$

Question 16: 
$$\downarrow^{\circ}$$
 + NH<sub>3</sub>  $\xrightarrow{[H_2 \circ]}$   $\downarrow^{\circ}$  + H<sub>2</sub>O

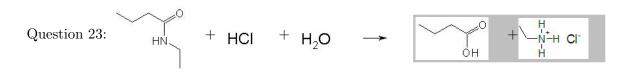
Question 17: 
$$-N$$
 +  $H_2O$   $\longleftrightarrow$   $-N^+H$  +  $OH^-$ 

Question 18: 
$$\stackrel{\circ}{\text{HN}}$$
 + HCl + H<sub>2</sub>O  $\longrightarrow$   $\stackrel{\circ}{\longrightarrow}$   $\stackrel{\circ}{\longrightarrow}$   $\stackrel{+}{\overset{+}{\longrightarrow}}$   $\stackrel{+}{\overset{-}{\longrightarrow}}$  + Cl

Question 19: 
$$NH_2 + CI \rightarrow NH$$

Question 20: 
$$\rightarrow$$
  $+$  HCI  $\rightarrow$   $\stackrel{H}{-N^{+}H}_{CI}$ 

Question 21: 
$$\begin{array}{c} \downarrow \\ N \end{array}$$
 +  $\begin{array}{c} + \\ H_2O \end{array}$   $\longleftrightarrow$   $\begin{array}{c} -\downarrow \\ -N \\ -H \end{array}$  +  $OH^-$ 



Question 24: 
$$+ \longrightarrow_{OH} + \longrightarrow_{H_2O}$$
  $+ \longleftarrow_{H_2O}$ 

Question 25: 
$$\frac{\mathsf{N}}{\Delta}$$
  $\frac{\mathsf{H}_2/\mathsf{N}\mathsf{i}}{\Delta}$   $\mathsf{NH}_2$