Complete the following reactions. Circle the most favored products.

1. 
$$\leftarrow$$
 +  $\text{Cl}_2$   $\rightarrow$ 

3. 
$$+ \text{ KMnO}_4 + \text{H}_2\text{O} \rightarrow$$

$$4.$$
  $\downarrow$  + HCI  $\rightarrow$ 

5. OH 
$$\frac{500 \text{ K}}{\Delta}$$

$$6.$$
 +  $\operatorname{Cl}_2$  -

$$7.$$
 + HCl  $\rightarrow$ 

9. 
$$+ H_2O \rightarrow$$

12. 
$$\bigcirc$$
 + HNO<sub>3</sub>  $\longrightarrow$ 

$$15.$$
 + HCl  $\rightarrow$ 

18. 
$$+ H_2(g) \rightarrow$$

$$20.$$
 + HCl  $\rightarrow$ 

21. 
$$+ H_2(g) \rightarrow$$

22. 
$$+ \text{ KMnO}_4 + \text{H}_2\text{O} \rightarrow$$

23. 
$$+ \text{KMnO}_4 + \text{H}_2\text{O} \rightarrow$$

25. ← O<sub>2</sub> →

Question 3: 
$$+ \text{MnO}_2 + \text{KOH}$$

Question 8: 
$$_{co_2(g)+}$$
  $_{H_2O(g)+Heat}$  Balance:  $(2,15,10,10)$ 

Question 10: \_\_\_co\_2 (g) + \_\_\_ H\_2O (g) + Heat Balance: 
$$(1,9,6,6)$$

Question 12: 
$$^{NO_2}$$
  $\bigcirc$   $+$   $_2O$ 

Question 13: 
$$_{co_2}(g) + _{h_2}(g) + Heat$$
 Balance:  $(2,11,8,6)$ 

Question 14: 
$$\_\_co_2(g) + \_\_H_2O(g) + Heat$$
 Balance:  $(1,4,3,2)$ 

Question 15: 
$$H_2(g)$$
 +  $CI$  +  $CI$  +  $CI$ 

Question 16: 
$$+$$

Question 17:  $_{--}$  co<sub>2</sub> (g) +  $_{---}$  H<sub>2</sub>O (g) + Heat Balance: (2,17,12,10)

Question 18:

Question 19: No Reaction

Question 21:

Question 22: 
$$+ \text{MnO}_2$$
 + KOH

Question 23: 
$$OH + MnO_2 + KOH$$

Question 25:  $_{--}$ co $_{2}$ (g) +  $_{---}$ H $_{2}$ O (g) + Heat Balance: (2,21,14,14)