

Name: _____

- 1) Given the reaction at equilibrium:



Which statement is always true?

- A) The rate of the forward reaction equals the rate of the reverse reaction.
 B) $[\text{CO}_3^{2-}]$ is less than $[\text{OH}^-]$.
 C) $[\text{CO}_3^{2-}]$ is less than $[\text{HCO}_3^-]$.
 D) The rate of the forward reaction is less than the rate of the reverse reaction.

- 2) Given the reaction at equilibrium:



When the reaction is subjected to stress, a change will occur in the concentration of

- A) neither reactants nor products
 B) both reactants and products
 C) reactants, only
 D) products, only

- 3) Given the reaction at equilibrium:

The concentration of $\text{A}(\text{g})$ can be increased by

- A) adding a catalyst
 B) lowering the temperature
 C) increasing the concentration of $\text{AB}(\text{g})$
 D) increasing the concentration of $\text{B}(\text{g})$

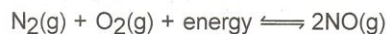
- 4) Given the reaction:



Which change would cause an immediate increase in the rate of the forward reaction?

- A) increasing the concentration of $\text{NO}(\text{g})$
 B) decreasing the reaction pressure
 C) decreasing the reaction temperature
 D) increasing the concentration of $\text{N}_2(\text{g})$

- 5) Given the reaction at equilibrium:

Which change will result in a decrease in the amount of $\text{NO}(\text{g})$ formed?

- A) decreasing the concentration of $\text{N}_2(\text{g})$
 B) increasing the concentration of $\text{O}_2(\text{g})$
 C) increasing the temperature
 D) decreasing the pressure

- 6) Given the reaction at equilibrium:



Which change will shift the equilibrium to the right?

- A) decreasing the pressure
 B) adding a catalyst
 C) adding more $\text{O}_2(\text{g})$
 D) increasing the temperature

- 7) Given the reaction at equilibrium:



Which stress on the system at equilibrium will increase the concentration of $AB(g)$?

- A) increasing the concentration of $B_2(g)$ C) decreasing the concentration of $A_2(g)$
B) decreasing the pressure D) increasing the temperature

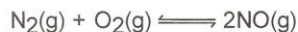
- 8) Given the reaction at equilibrium:



Which change will shift the equilibrium to the right?

- A) decreasing $[SO_2]$ C) increasing the temperature
B) decreasing the pressure D) increasing $[O_2]$

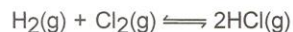
- 9) Given the reaction at equilibrium:



As the concentration of $N_2(g)$ increases, the concentration of $O_2(g)$ will

- A) remain the same B) increase C) decrease

- 10) Given the reaction at STP and at equilibrium:



Which change will result in an increase in the concentration of $Cl_2(g)$?

- A) decreasing the concentration of $HCl(g)$ C) increasing the concentration of $HCl(g)$
B) increasing the concentration of $H_2(g)$ D) decreasing the pressure of the system