## EQUILIBRIUM LESSON-6 QUIZ: **LE CHÂTELIER'S PRINCIPLE**

*Consider the following equilibrium in a closed vessel for questions 1 to 6.*

$$PCl_5(g) + 45\ kJ \rightleftharpoons PCl_3(g) + Cl_2(g)$$

1. Adding chlorine gas to the system will . . .
   A. shift the equilibrium to the right (toward products).
   B. shift the equilibrium to the left (toward reactants).
   C. not shift the equilibrium.

2. Increasing the temperature of the system will . . .
   A. shift the equilibrium to the right (toward products).
   B. shift the equilibrium to the left (toward reactants).
   C. not shift the equilibrium.

3. Increasing the volume of the system will . . .
   A. shift the equilibrium to the right (toward products).
   B. shift the equilibrium to the left (toward reactants).
   C. not shift the equilibrium.

4. Adding a catalyst to the system will . . .
   A. shift the equilibrium to the right (toward products).
   B. shift the equilibrium to the left (toward reactants).
   C. not shift the equilibrium.

5. Removing phosphorus trichloride, $PCl_3(g)$, from the system will . . .
   A. shift the equilibrium to the right (toward products).
   B. shift the equilibrium to the left (toward reactants).
   C. not shift the equilibrium.

6. Increasing the pressure by injecting inert argon gas will . . .
   A. shift the equilibrium to the right (toward products).
   B. shift the equilibrium to the left (toward reactants).
   C. not shift the equilibrium.

7. When heated the following system becomes darker green.

   $$2\ A(g) \rightleftharpoons A_2(g)$$
   green colourless

   Therefore, the forward reaction must be . . .
   A. exothermic.
   B. endothermic.

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ANSWERS: 1. B 2. A 3. A 4. C 5. A 6. C 7. A