

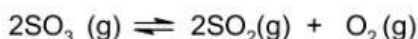
CHAPTER 6: CHEMICAL EQUILIBRIUM

1. Kp for the reaction

at 400°C is 1.64×10^{-4} . Calculate Kc.

- A. 0.30 C. 0.50
B. 0.40 D. 0.60

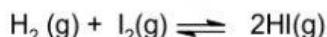
2. One mole of SO
- ₃
- was placed in a one litre reaction flask at a given temperature.



When the reaction equilibrium was established in the reaction, the vessel was found to contain 0.6 mole of SO₂. The value of equilibrium constant is

- A. 0.360 C. 0.450
B. 0.675 D. 0.540

3. The value of Kc for the reaction;



is 50.2 at 450°C. If at the same temperature, $[\text{H}_2] = [\text{I}_2] = [\text{HI}] = 1.75 \times 10^{-3} \text{ M}$, which of the following statement is **TRUE**?

- A. The system is at equilibrium.
B. HI concentration increases when the system re-establishes equilibrium.
C. Concentration H₂ and I₂ increase as the system re-establishes equilibrium.
D. Concentration HI and I₂ increase as the system re-establishes equilibrium.

4. The equilibrium constant of PCl
- ₅
- (g) to form PCl
- ₃
- (g) and Cl
- ₂
- (g) is 0.04 moldm
- ⁻³
- at 250°C. An equilibrium mixture contains 0.02 mol PCl
- ₃
- (g) and 0.12 mol Cl
- ₂
- (g) in a 4000 cm
- ³
- container at 250°C. Calculate the mass of PCl
- ₅
- in this container.

- A. 3.1275 g C. 0.0375 g
B. 7.8200 g D. 0.5000 g

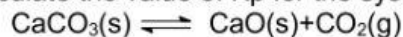
5. The value of Kc at 700°C for the equilibrium



is 9.01. Calculate the value of Kp at the same temperature.

- A. 10.0 C. 1.09
B. 0.19 D. 9.01

6. Calculate the value of Kp for the system



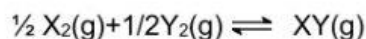
At 525°C, with the equilibrium pressure of CO₂ at 0.22atm.

- A. 3.36 C. 0.08
B. 0.22 D. 0.79

7. At a certain temperature, the equilibrium constant, Kc for the reaction



is 25. What is the equilibrium constant, Kc for the reaction below?



- A. 5 C. 12.5
B. 1/25 D. 1/5

8. Consider the following reaction at 400K.



At equilibrium, the following concentration were obtained:

$[\text{PCl}_5] = 0.042 \text{ M}$, $[\text{PCl}_3] = 1.25 \text{ M}$, and $[\text{Cl}_2] = 0.4 \text{ M}$

What is the value of Kp for the reaction?

- A. 0.084 C. 11.90
B. 0.363 D. 390.6