

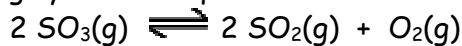
SID

--	--	--	--	--	--	--	--

Last KeyFirst Answer**Question 1**

6 Points

Consider the following system at equilibrium where $\Delta H^\circ = 198 \text{ kJ}$, and $K_c = 2.90 \times 10^{-2}$, at 1150K.



When 0.27 moles of $\text{SO}_3(\text{g})$ are removed from the system at equilibrium at 1150K:

The value of K_c

Increases
 Decreases
 Remains the same

The value of Q

Is greater than K_c
 Is less than K_c
 Is equal to K_c

$[\text{SO}_2]$

Increases
 Decreases
 Remains the same

Question 2

6 Points

Consider the following system at equilibrium where $\Delta H^\circ = 16.1 \text{ kJ}$, and $K_c = 6.50 \times 10^{-3}$, at 298 K.



If the **TEMPERATURE** on the equilibrium system is suddenly increased:

The value of K_c

Increases
 Decreases
 Remains the same

The value of Q

Is greater than K_c
 Is less than K_c
 Is equal to K_c

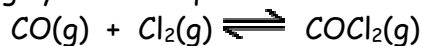
$[\text{Br}_2]$

Increases
 Decreases
 Remains the same

Question 3

5 Points

Consider the following system at equilibrium where $K_c = 77.5$ and $\Delta H^\circ = -108 \text{ kJ/mol}$ at 600 K.



The production of $\text{COCl}_2(\text{g})$ is favored by:

Indicate True (T) or False (F) for each of the following:

- | | | | |
|--------------------------------|----------|--|----------|
| a) Decreasing the temperature. | <u>T</u> | d) Removing Cl_2 . | <u>F</u> |
| b) Decreasing the volume. | <u>T</u> | e) Decreasing the pressure (by changing the volume). | <u>F</u> |
| c) Removing COCl_2 . | <u>T</u> | | |

Question 4

3 Points

a) What is the conjugate acid of HSO_4^- H_2SO_4

b) What is the conjugate base of HSO_4^- SO_4^{2-}

c) Write a net ionic equation to show that ammonia behaves as a Brønsted-Lowry base in water.

