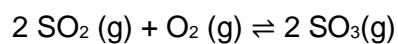


Q1.

The equation for the reaction between sulfur dioxide and oxygen is shown.



In an experiment, 2.00 mol of sulfur dioxide are mixed with 2.00 mol of oxygen.

The total amount of the three gases at equilibrium is 3.40 mol

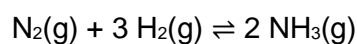
What is the mole fraction of sulfur trioxide in the equilibrium mixture?

- A 0.176
- B 0.353
- C 0.600
- D 1.200

(Total 1 mark)

Q2.

Nitrogen reacts with hydrogen in this exothermic reaction



Which change increases the equilibrium yield of ammonia but has no effect on the value of the equilibrium constant K_p ?

- A Add a catalyst
- B Increase the partial pressure of nitrogen
- C Decrease the temperature
- D Decrease the total pressure

(Total 1 mark)

Q3.

An equilibrium mixture is prepared in a container of fixed volume.



The temperature of this mixture is decreased and the mixture is allowed to reach a new equilibrium.

Which is greater for the new equilibrium than for the original equilibrium?

- A** The mole fraction of carbon monoxide
- B** The partial pressure of chlorine
- C** The total pressure of the mixture
- D** The value of the equilibrium constant, K_p

(Total 1 mark)

Q4.

Which statement about K_p is correct for this reaction in the gas phase?

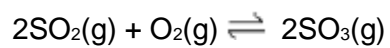


- A** The value of K_p is independent of pressure.
- B** The value of K_p increases as pressure increases.
- C** The value of K_p increases as temperature increases.
- D** The value of K_p is independent of temperature.

(Total 1 mark)

Q5.

Which change would alter the value of the equilibrium constant (K_p) for this reaction?



- A** Increasing the total pressure of the system.
- B** Increasing the concentration of sulfur trioxide.
- C** Increasing the concentration of sulfur dioxide.
- D** Increasing the temperature.

(Total 1 mark)