EQUILIBRIA (A)

Sulfur dioxide reacts with oxygen to form sulphur trioxide in a reaction that reaches a dynamic equilibrium in a closed system. The forward reaction is exothermic.

$$\underset{\text{sulfur dioxide}}{2SO_2(g)} + O_2(g) \rightleftharpoons \underset{\text{sulfur trioxide}}{2SO_3(g)}$$

1 What happens to the equilibrium yield of sulphur trioxide (SO_3) if the temperature is increased? Explain your answer.

equilibrium position moves left
in endothermic direction
to lower the temperature
less SO_3 formed

2 What happens to the equilibrium yield of sulphur trioxide (SO_3) if the pressure is increased? Explain your answer.

equilibrium position moves right
to side with fewer gas molecules
to lower the pressure
more SO_3 formed

3 What happens to the equilibrium yield of sulphur trioxide (SO_3) if more oxygen (O_2) is added? Explain your answer.

equilibrium position moves right
to remove the added O_2
more SO_3 formed

4 What happens to the equilibrium yield of sulphur trioxide (SO_3) if a catalyst is used? Explain your answer.

catalyst speeds up both reactions by the same amount
equilibrium position does not move
no change to amount of SO_3 formed