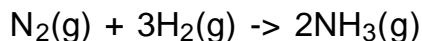
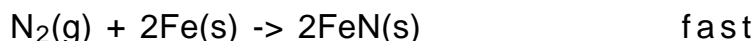


Chem12 Reaction Mechanisms 2-40

Exercise : 4) The reaction to produce ammonia

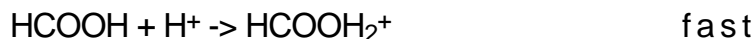


is slow. But the following two step reaction is much faster.



Which species in the above reaction (known as the Haber Process) is the catalyst? Which species is the reaction intermediate ?

5) Answer the following questions about this three step endothermic reaction.



a) Give the two reaction intermediates. _____

b) Which species is the catalyst ? _____

c) Give the overall reaction. _____

d) Give the reverse reaction. _____

e) Sketch the potential energy diagram for the reaction below. Label the activation energy and ΔH and the rate determining step.

Answers : 4) Fe, FeN, 5)a) HCOOH_2^+ , HCO^+ , b) H^+ , c) $\text{HCOOH} \rightarrow \text{H}_2\text{O} + \text{CO}$, d) $\text{H}_2\text{O} + \text{CO} \rightarrow \text{HCOOH}$, e)

