Haber Process

- Nitrogen and hydrogen are reacted at about 450°C and 200 atmospheres pressures using an iron catalyst.
- High pressure favours the side of the chemical equation which contains the smallest number of moles.
- Low pressure favours the side of the chemical equation which contains the largest number of gaseous molecules (moles.)

An increase of pressure will tend to produce a higher yield of ammonia as the volume of the reactants is much greater than the volume of product.
The reaction pipes and vessels are expensive because they must be strong enough to withstand such high pressures or they'll
Haber process is a compromise between using high pressures, and the expense of building a chemical plant to withstand the pressures. Meaning the Haber process is normally carried out between 200 and 350 atmospheres.
As the reaction is exothermic, low temperatures would increase the amount of ammonia in the equilibrium mixture at equilibrium. Using this low temperature would make the rate of the reaction slow because the particles have less energy and so there will be less collisions. The production of ammonia is made commercially viable by using a reasonably high temperature to get the reaction going at a reasonable rate even though this reduces the amount of ammonia in the equilibrium mixture. An iron catalyst is also used to speed up the reaction.

Electrolysis is the "splitting up" of a compound using electricity. An electric current is used to decompose a substance made of ions (the electrolyte) into simpler substances.
The positive electrode - ANODE
The negative electrode - CATHODE.
At the electrodes the ions lose their charge and deposite as elements. Gases are given off or metals are deposited.
When carried out in water it becomes more complicated as water has ions