Prolog

The following Prolog clauses define the procedure named \texttt{reverse}. The goal \texttt{reverse(X,Y)} succeeds for the list \texttt{X}, instantiating \texttt{Y} to the reverse of the list \texttt{X}. For example, evaluating the goal \texttt{reverse([a,b,c],Q)} instantiates \texttt{Q} to \texttt{[c,b,a]}.

\begin{verbatim}
reverse(X,Y) :- rev(X,[],Y).
rev([],L,L).
rev([H|T],R,Y) :- rev(T,[H|R],Y).
\end{verbatim}

Explain how this procedure works, using a small example. [10 marks]

What is the outcome of the goal \texttt{reverse(L,[a,b,c])}? Explain your answer carefully. [10 marks]