Advanced Synthetic Methods:

1. a) Name the following transformation. For each of the three reagents shown below, state whether they are suitable for the desired transformation and the number of the equivalents.

\[
\text{Br} \xrightarrow{\text{reagent}} \text{Li}
\]

<table>
<thead>
<tr>
<th>Suitable (y/n)</th>
<th>LDA</th>
<th>n-BuLi</th>
<th>t-BuLi</th>
</tr>
</thead>
<tbody>
<tr>
<td>equivalent</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Solution:** Metal-halogen exchange.

LDA (No)
nBuLi (Yes, 1 eq)
tBuLi (Yes, 2 eq)

b) Suggest a combination of two reagents for the following transformation.

\[
\text{H} \xrightarrow{?} \text{Li}
\]

**Solution:** \(\text{Li}^+\) \(\text{N}^-(\text{TMEDA})\)