1. Anisole (methoxybenzene) undergoes bromination much faster than benzene, and directs incoming substituents into the ortho, para positions. Use resonance structures the carbocation intermediate formed for addition to the ortho, meta, and para positions to explain for the accelerated rate.

2. Provide a synthesis of the following products from the given starting materials:

**Hints:**

#1: You know how to do a simple bromination, nitration, Friedel Crafts Acylation, and Friedel Crafts Alkylation. If you have to incorporate anything more complicated than these groups, then put the simple group on first, and then do functional group manipulation using techniques from chapters 9, 10, 11, 12, 15 & 16 (only 2c below can be put on in one step).

#2: If more than one substituent is going on the benzene ring, order is critical. You will not get partial credit on the final if you have the correct reagents, but put them on in the wrong order!

```latex
\begin{align*}
\text{a.} & \quad \text{C}_6\text{H}_5\text{CH}_2\text{Br} \\
\text{b.} & \quad \text{C}_6\text{H}_5\text{COCH}_3 \\
\text{c.} & \quad \text{C}_6\text{H}_5\text{CHO} \\
\text{d.} & \quad \text{C}_6\text{H}_5\text{Br} \\
\text{e.} & \quad \text{C}_6\text{H}_5\text{CO} \\
\text{f.} & \quad \text{C}_6\text{H}_5\text{CH} = \text{CH}_2 \\
\text{g.} & \quad \text{H}_3\text{C} = \text{CH}_2\text{CHO} \xrightarrow{?} \text{H}_3\text{C} = \text{CH}_2\text{CH}_2\text{CN} \\
\text{h.} & \quad \text{CH}_3\text{O} - \text{C}_6\text{H}_4\text{COCH}_3 \xrightarrow{\text{Br}_2, \text{FeBr}_3} 
\end{align*}
```