Quiz 9

1) Draw a plausible mechanism for the following transformation: (3 points)

2) Give an example of Baeyer-Villiger oxidation and detailed mechanism. (3 points)

3) Give an example of Wolff-Kishner reduction and detailed mechanism. (3 points)
4) Propose a reasonable synthetic route for the following transformation: (3 points)

5) Predict the major product(s) for each of the following reactions: (3 points)
   a) \[
   \text{amine} + \text{SOCl}_2 \rightarrow \text{ester} \]

   b) \[
   \text{phenol} + \text{acid} \rightarrow \text{ester} \]

   c) \[
   \text{benzene} + \text{acid} \rightarrow \text{ester} \]

6) Propose a reasonable synthetic route for the following transformation: (2 points)

   \[
   \text{primary alkyl bromide} \rightarrow \text{primary alkyl ketone} \]

   \[
   \text{primary alkyl bromide} + \text{metal} \rightarrow \text{primary alkyl ketone} \]

   \[
   \text{primary alkyl ketone} + \text{iodine} \rightarrow \text{primary alkyl ketone} \]

   \[
   \text{primary alkyl ketone} + \text{KMnO}_4 \rightarrow \text{primary alkyl ketone} \]

   \[
   \text{primary alkyl ketone} + \text{Na}_2C_2O_4 \rightarrow \text{primary alkyl ketone} \]
7) Identify a systematic name (IUPAC) for each of the following compounds (3 points)

(a) cyclopentanecarboxamide
(b) benzoyl chloride
(c) CH$_3$(CH$_2$)$_4$COOH

**BONUS:**

Draw the structure of product and EDC and provide a detailed mechanism (3 points).

Ph–COOH + Ph$\text{=}$NH$_2$ $\xrightarrow{\text{EDC, DMAP, DCM}}$ Product

EDC structure