1. (15 pts) Quick answers from Jones, Chapters 5-7 (3 pts each):
   (a) Circle the better nucleophile for $S_N2$ reactions:
   \[ \text{CH}_3\text{O}^- \quad \text{CH}_3\text{S}^- \]
   (b) Circle the stronger base:
   \[ \text{CH}_3\text{O}^- \quad \text{CH}_3\text{S}^- \]
   (c) Circle the compound that would undergo $S_N1$ reaction faster:
   \[ \text{circle} \]
   (d) Circle the better solvent for E2 or $S_N2$ reactions:
   \[ \text{Tetrahydrofuran} \quad \text{Mixture:} \]
   \[ 80\% \text{ CH}_3\text{CH}_2\text{OH} \]
   \[ 20\% \text{ H}_2\text{O} \]
   (e) Circle the preferred (or Saytzeff) product of the E2 reaction below:
   \[ \text{circle} \]

2. (5 pts) For the following intramolecular (within the molecule) reaction…

   \[ \text{circle} \]

   (a) (2 pts) Add curly arrows above to show the electron movement in this process.

   (b) (3 pts) The squiggly line to Br above indicates unspecified stereochemistry. Circle the stereoisomer below that would react fastest and briefly explain your choice.

   For attack with inversion to occur ($S_N2$-like, though formally uni-molecular) the leaving group (Br) must be anti to the alkoxide site, so the \textit{trans} form is the correct choice.