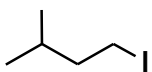
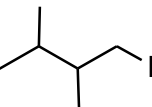
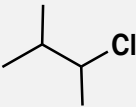
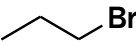
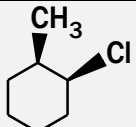
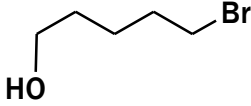
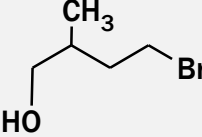
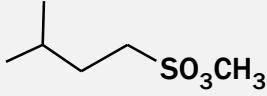
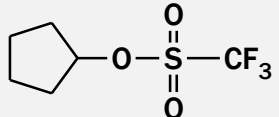
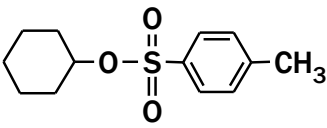
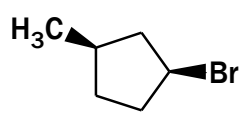
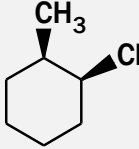
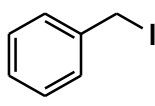
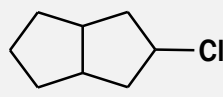
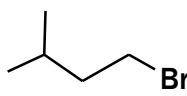
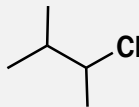
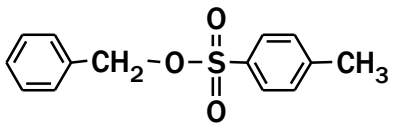
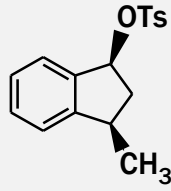


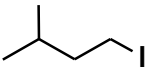
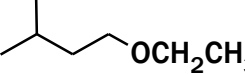
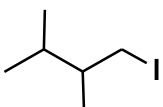
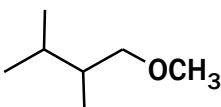
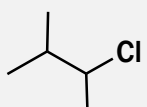
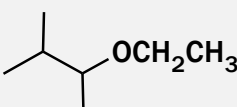
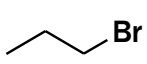
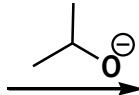
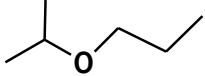
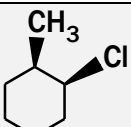
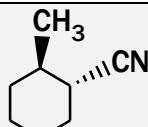
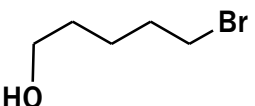
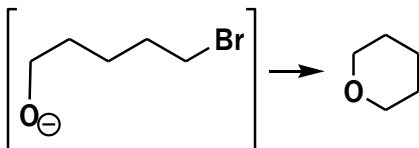
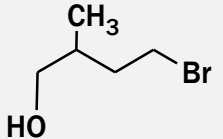
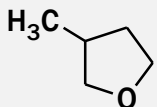
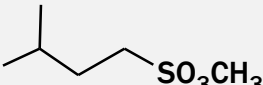
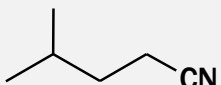
S_N2 Reactions- Give the product for each reaction. Do not peek at the answers until you have a reasonable solution. Answers are shown below.

$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Cl}$	$\text{Na}^+ \ominus \ddot{\text{O}}\text{CH}_3 \xrightarrow[\text{(solvent)}]{\text{acetone}}$	
	$\text{Na}^+ \ominus \ddot{\text{O}}\text{CH}_2\text{CH}_3 \xrightarrow{\text{acetone}}$	
$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Br}$	$\text{Na}^+ \ominus \text{:C}\equiv\text{N:} \xrightarrow[\text{(solvent)}]{\text{DMF}}$	
	$\text{Na}^+ \ominus \ddot{\text{O}}\text{CH}_3 \xrightarrow{\text{acetone}}$	
	$\xrightarrow[\text{DMF}]{\text{NaOEt}}$	
	$\xrightarrow[\text{acetone}]{\text{isopropoxide ion}}$	
	$\xrightarrow[\text{DMF}]{\text{KCN}}$	
	$\xrightarrow[\text{acetone}]{\text{NaH}}$	
	$\xrightarrow[\text{acetone}]{\text{NaH}}$	
$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-}\ddot{\text{O}}\text{-}\overset{\text{O}}{\parallel}\text{S}\text{-CH}_3$	$\xrightarrow[\text{CH}_3\text{CN}]{\text{NaOH}}$	
	$\xrightarrow[\text{(solvent)}]{\text{CH}_3\text{CN}} \text{KCN}$	

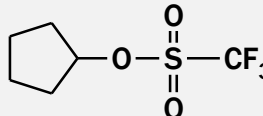
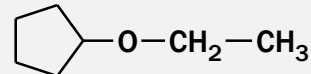
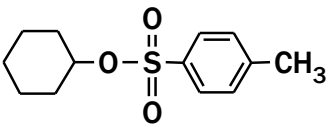
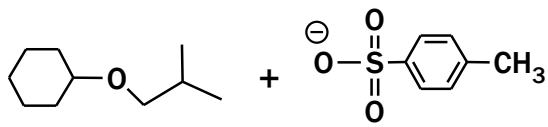
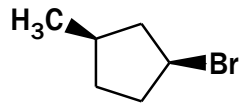
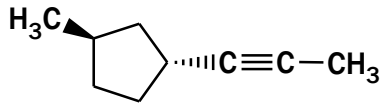
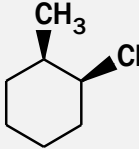
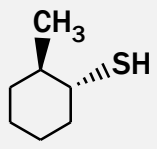
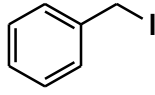
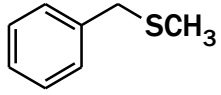
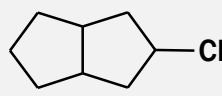
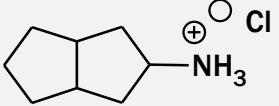
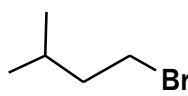
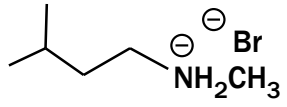
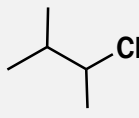
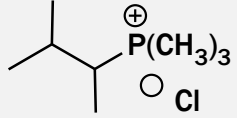
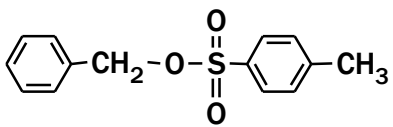
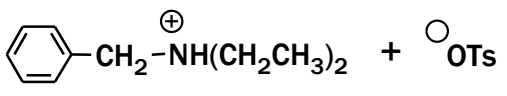
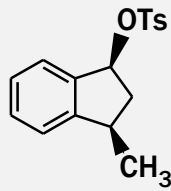
S_N2 Reactions- Give the product for each reaction. Do not peek at the answers until you have a reasonable solution. Answers are shown below.

	$\xrightarrow[\text{EtOH}]{\text{NaOEt}}$	
	$\xrightarrow[\text{DMF}]{\text{NaO-CH}_2\text{CH}_2\text{CH}_2\text{CH}_3}$	
$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Br}$	$\xrightarrow[\text{acetone}]{\ominus \text{O-C(=O)-CH}_3}$	
	$\xrightarrow[\text{DMF}]{\ominus \text{:C}\equiv\text{C-CH}_3}$	
	$\xrightarrow[\text{(solvent) DMSO}]{\text{NaSH}}$	
	$\xrightarrow[\text{DMSO}]{\text{NaSCH}_3}$	
	$\xrightarrow[\text{DMF}]{\text{:NH}_3}$	
	$\xrightarrow[\text{DMF}]{\text{:NH}_2\text{CH}_3}$	
	$\xrightarrow[\text{DMSO}]{\text{:P(CH}_3)_3}$	
	$\xrightarrow[\text{DMF}]{\text{:NH(CH}_2\text{CH}_3)_2}$	
	$\xrightarrow[\text{DMSO}]{\text{Ph}_3\text{P}}$	

ANSWER KEY

$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Cl}$	$\text{Na}^+ \text{:}\ddot{\text{O}}\text{CH}_3^- \xrightarrow[\text{(solvent)}]{\text{acetone}}$	$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-OCH}_3$
	$\text{Na}^+ \text{:}\ddot{\text{O}}\text{CH}_2\text{CH}_3^- \xrightarrow{\text{acetone}}$	
$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Br}$	$\text{Na}^+ \text{:}\text{C}\equiv\text{N:}^- \xrightarrow[\text{(solvent)}]{\text{DMF}}$	$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-C}\equiv\text{N:}$
	$\text{Na}^+ \text{:}\ddot{\text{O}}\text{CH}_3^- \xrightarrow{\text{acetone}}$	
	$\xrightarrow[\text{DMF}]{\text{NaOEt}}$	
	 $\xrightarrow{\text{acetone}}$	
	$\xrightarrow[\text{DMF}]{\text{KCN}}$	
	$\xrightarrow[\text{acetone}]{\text{NaH}}$	
	$\xrightarrow[\text{acetone}]{\text{NaH}}$	
$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-}\ddot{\text{O}}\text{-}\overset{\text{O}}{\parallel}{\text{S}}\text{-CH}_3$	$\xrightarrow[\text{CH}_3\text{CN}]{\text{NaOH}}$	$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-OH} + \text{Na}^+ \text{:}\ddot{\text{O}}\text{-}\overset{\text{O}}{\parallel}{\text{S}}\text{-CH}_3^-$
	$\xrightarrow[\text{(solvent)}]{\text{CH}_3\text{CN}} \text{KCN}$	

ANSWER KEY

	$\xrightarrow[\text{EtOH}]{\text{NaOEt}}$	
	$\xrightarrow[\text{DMF}]{\text{NaO-CH}_2\text{CH}_2\text{CH}_3}$	
$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Br}$	$\xrightarrow[\text{acetone}]{\ominus \text{O-C(=O)-CH}_3}$	$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-O-C(=O)-CH}_3$
	$\xrightarrow[\text{DMF}]{\ominus \text{:C}\equiv\text{C-CH}_3}$	
	$\xrightarrow[\text{(solvent)}]{\text{NaSH}}$ DMSO	
	$\xrightarrow[\text{DMSO}]{\text{NaSCH}_3}$	
	$\xrightarrow[\text{DMF}]{\text{:NH}_3}$	
	$\xrightarrow[\text{DMF}]{\text{:NH}_2\text{CH}_3}$	
	$\xrightarrow[\text{DMSO}]{\text{:P(CH}_3)_3}$	
	$\xrightarrow[\text{DMF}]{\text{:NH(CH}_2\text{CH}_3)_2}$	
	$\xrightarrow[\text{DMSO}]{\text{PPh}_3}$	