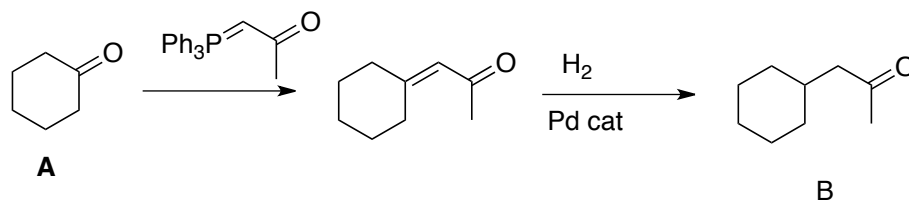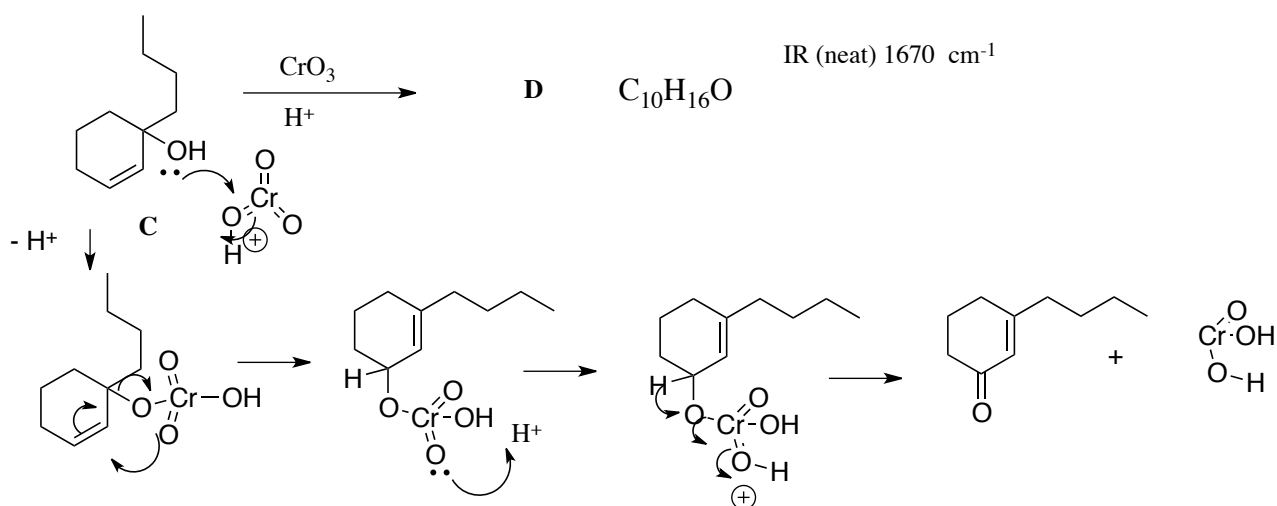1. (10 points) Show a synthetic scheme for converting **A** into **B**. As well as **A**, you may use any piece that contributes three or fewer carbons to the final product.

A

B

2. (10 points) Deduce the structure of D, and draw an arrow-pushing mechanism for its formation.

IR (neat) 1670 cm^{-1}

$$\text{D} \quad C_{10}H_{16}O$$

3. (10 points) Draw and arrow-pushing mechanism for the cyclization of **E** to **F**.

E

F

bb	bf
f-O	O-H
f-O	O-H
a-H	a-f
a-H	a-f