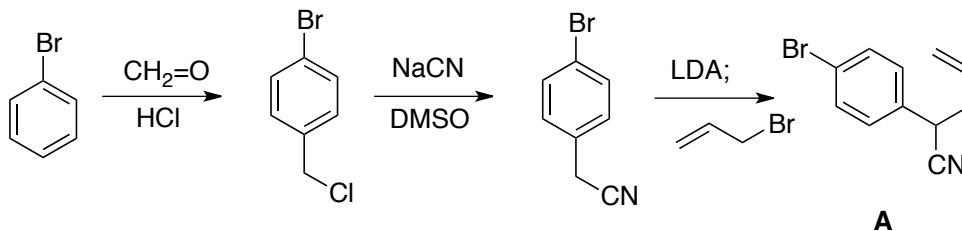
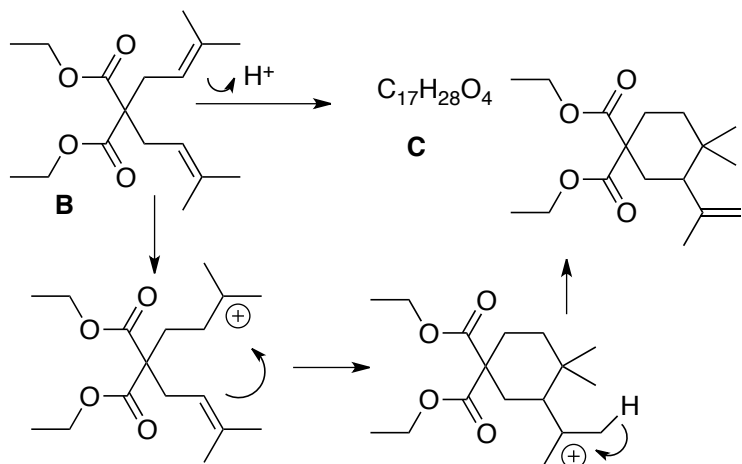


1. (10 points) Using any pieces that contribute three or fewer carbons to the final product, and any monosubstituted benzene derivative that contributes at most seven carbons to the final product, outline a synthesis of **A**.

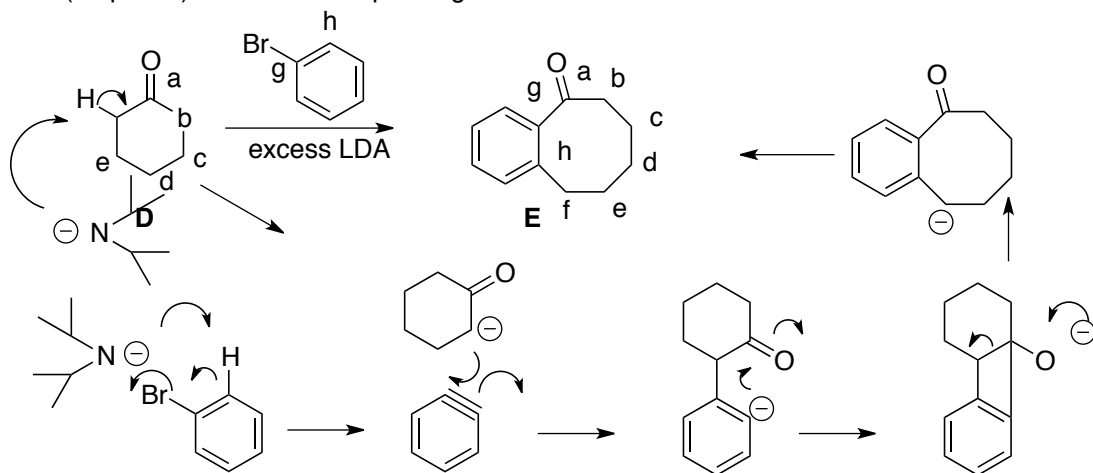


2. (10 points) Deduce the structure of **C**, and draw an arrow-pushing mechanism for its formation.



¹³ C NMR		¹ H NMR	
172.9, s	33.4, s	4.78, bs, 1H	
171.5, s	32.8, t	4.55, bs, 1H	
146.8, s	31.3, t	4.12, q, J = 7.2 Hz, 2H	
113.3, t	27.4, q	4.09, q, J = 7.2 Hz, 2H	
61.4, t	24.4, q	1.8-2.1, m, 5H	
61.7, t	20.4, q	1.64, s, 3H	
55.9, s	14.5, q	1.3-1.4, m, 2H	
49.9, d	14.1, q	1.17, t, J = 7.2 Hz, 3H	
39.2, t		1.14, t, J = 7.2 Hz, 3H	
		0.81, s, 3H	
		0.78, s, 3H	

3. (10 points) Draw an arrow-pushing mechanism for the conversion of **D** to **E**.



	bb	bf
g-Br		a-g
h-H		h-f
a-f		