

Group Learning Assignments

gla 1 (a) Draw structures for the following compounds based on their NMR spectra:

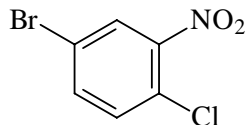
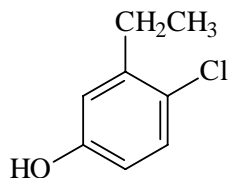
C₉H₁₀O PMR: 7.2 (5H, m), 3.6 (2H, s), 2.1(3H, s).

C₉H₁₀O PMR: 9.9 (1H, m); 7.2 (5H, m), 2.7 (2H, t), 2.3 (2H, m).

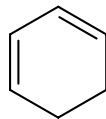
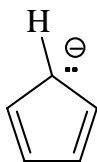
C₉H₁₀O PMR: 6.8 (2H, d); 7.2 (2H, d), 5.2 (1H, m); 4.8 (2H, m); 3.8 (3H, s).

(note that 'm' refers to **m**ultiplet...which is anything that is not a singlet)

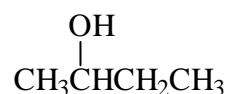
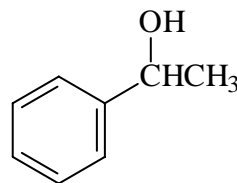
(b) Give the correct IUPAC name for each of the following:



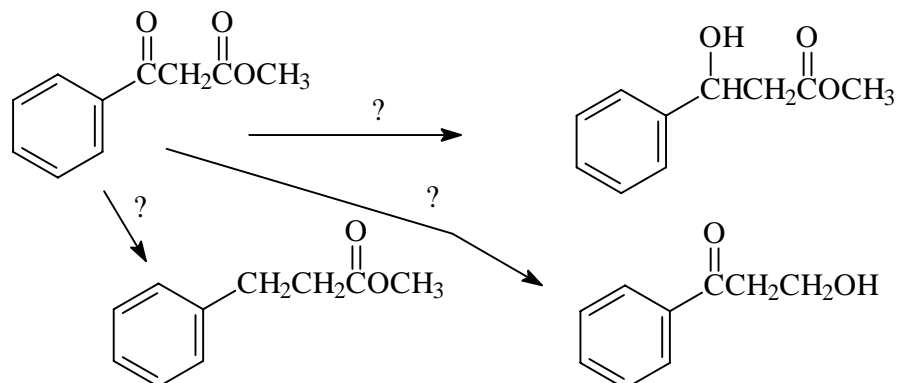
(c) Circle the structures that are aromatic according to **Hückel's rule**:



gla 2 Devise three different syntheses of each of the following (total = 9), using (in separate syntheses): a) a Grignard reaction, b) reduction of a carbonyl compound, and c) hydration of an alkene (by any of the three methods you learned). You choose the starting material for each synthesis. Show all reagents and conditions needed for each step.

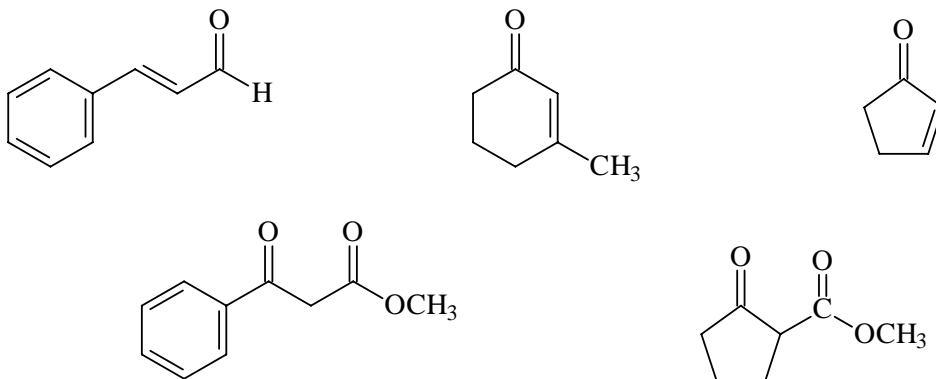


gla 3 (a) Write the reagents needed to reduce the indicated reactant selectively three different ways as shown below; several steps may be involved:



(b) Devise a step-by-step synthesis (showing all reagents needed for each step) for the transformation of **1-propanol** to **propyl butanoate**, using 1-propanol as the source of six of the carbon atoms in the product.

gla 4 (a) Devise a synthesis of each of the following using a condensation reaction. Be sure to indicate what starting material and reagents are needed for each step. It is not necessary to write the mechanism.



(b) Devise a stepwise synthesis of each of the following starting with **aniline** and using a **diazonium ion** intermediate. Show the reagents needed for each step.

