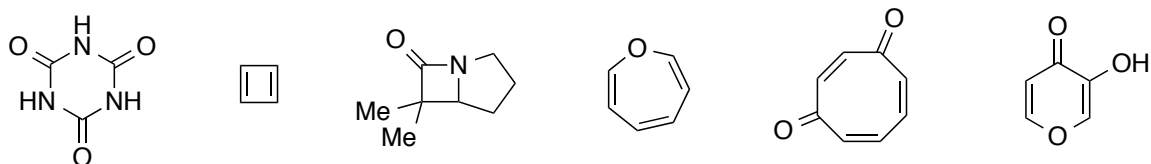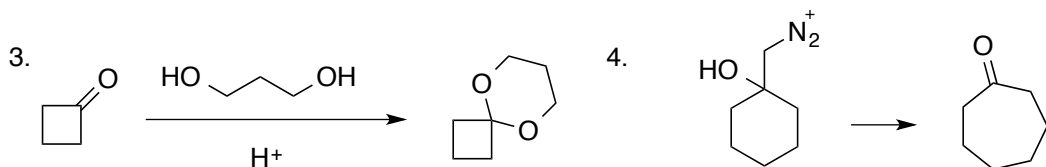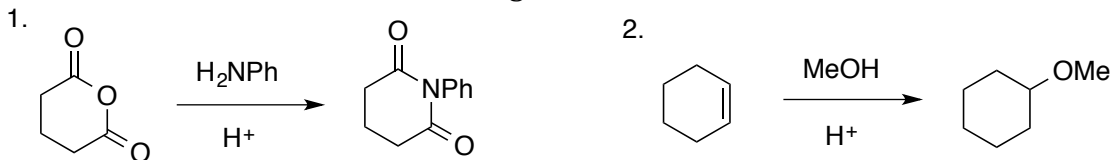**Practice Final Exam Questions (Organic II) . We will go over in Class during review period.**

1. Put a circle around the molecules that are aromatic, a square around those that are anti-aromatic. Leave non-aromatic uncircled.


2. Show a mechanism for the following reactions.

1.

H_2NPh

H^+

2.

MeOH

H^+

3.

H^+

4.

5.

Ru=

6.

Br_2

$FeBr_3$

3. Show a mechanism for the following (Grant Challenge). Hint at end with * if you need it. ←- this is for the people that want a big challenge and who are already very comfortable with mechanisms.

1.

2. heat

3. Na_2CO_3, H_2O
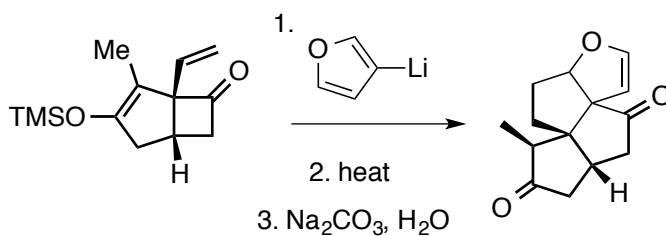
4. Propose a synthesis for the following, starting from methanol as your only carbon-based starting material.
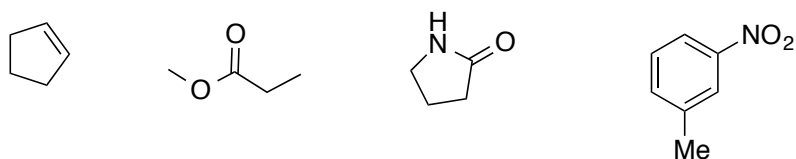
5. Classify the following molecules as sugars, terpenes, terpene/steroids, amino acids, or fatty acid.
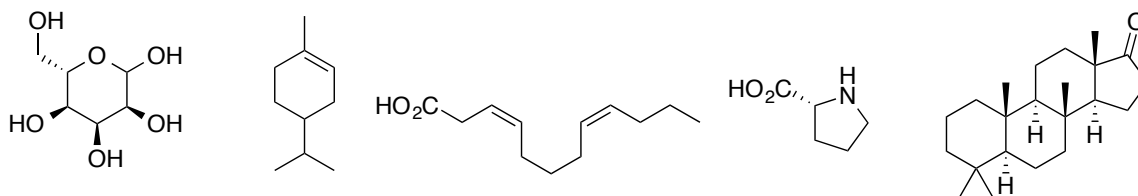
6. The following reaction is an oxy-Cope rearrangment.   It is driven by the tautomerization of the enol to the carbonyl form. When starting from a single enantiomer, very high percentage of a single enantiomer of the product is formed. Using a chair transition state, predict the enantiomer formed in the product.
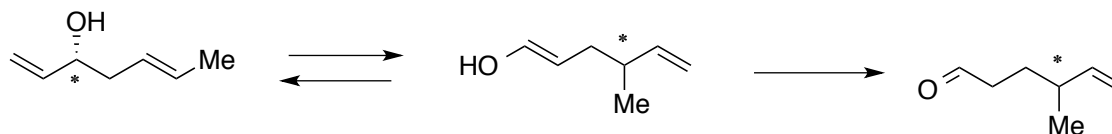
7. Predict the products of the following Diels-Alder reaction, making sure to address appropriate regio and stereoselectivity. Assume that pi-pi interactions be stronger with the Ph group then the CO_2Et group (ie, the Ph group will be endo, CO_2Et will be exo).
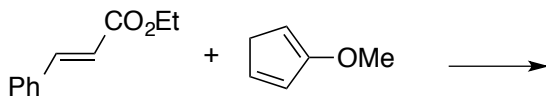
8. The following are protecting groups you have not seen. One of them is acid sensitive, and one of them is base sensitive. Predict which is which and show a mechanism that shows how they can be deprotected under acidic (H+) or basic (OH-) conditions.
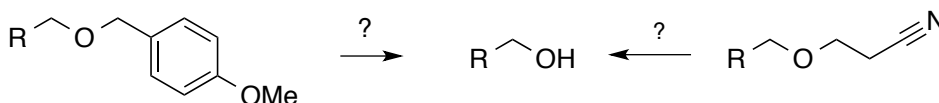
9. Expect to get tested on all reactions, similar to question 1 on last year's exam.

* Hint for #3: 1. The first step with the furan should be exactly what you think it is. 2. The second step is a Cope. 3. The third step is a few steps and involves a Michael addition.